R-51-4-2-1

FINAL
SCREENING SITE INSPECTION

INACTIVE LANDFILL

EPA WORK ASSIGNMENT NO. 37-34-3JZZ
PROJECT NO. 3263-05
EPA DSN PA-2803
FACILITY ID NO. PAD987285616

ARCS III PROGRAM
EPA CONTRACT NO. 68-W8-0037

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HALLIBURTON NUS
Environmental Corporation

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ARCS III PROGRAM
EPA CONTRACT NO. 68-W8-0037

FOR THE
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

JUNE 16, 1992

SUBMITTED BY

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SECTION 1.0

1.0 INTRODUCTION

1.1 AUTHORIZATION

HALLIBURTON NUS Environmental Corporation performed this work under EPA Contract No. 68-W8-0037. This specific report was prepared in accordance with ARCS III Work Assignment No. 37-34-3JZZ for the Inactive Landfill Site, located in Sellersville, Bucks County, Pennsylvania.

1.2 SCOPE OF WORK

HALLIBURTON NUS Environmental Corporation (formerly NUS Corporation) ARCS III was tasked to conduct a screening site inspection of the subject site.

1.3 SUMMARY

The Inactive Landfill Site is located in Sellersville, West Rockhill Township, Bucks County, Pennsylvania, at the southeastern corner of the intersection of old Route 309 and Twelfth Street. The area of concern is an old landfill, approximately 60 by 80 feet in size, that is bordered by an intermittent stream, wetlands, and wooded areas. The environmental concern at the site is primarily surface water, groundwater, and soil contamination.

The site, located on one of five combined lots, was purchased by Park Ten, Incorporated (PTI) in 1968. The lot containing the landfill area (lot no. 8) accounts for a majority of the northern one-third portion of the overall PTI property. During the early 1940s, lot no. 8 was leased by the previous land owner, Ulysees Nace, to Lamar Barndt, who was a local waste hauler. Mr. Barndt allegedly hauled waste from Ametek - United States Gauge, located in Sellersville, which manufactured aircraft dials with radium-based paint. In the early 1970s, lot no. 8 was leased by an automotive mechanic, Timothy Auckland.

In 1985, PTI planned to sell the property. Radiation Service Organization (RSO), of Laurel, Maryland, was hired by PTI before the sale of the property to conduct an environmental assessment. RSO deduced that a minor radiation contamination problem existed on site and was eventually contracted to remove a plastic bag containing a jar of radium paint, pieces of a broken jar, and several cubic feet of contaminated soil.

In December 1989, the Sellersville Borough Municipal Water Works (SBMWW) supply well no. 5, located 900 feet south of the site, was sampled by SBMWW technicians. The sample results revealed elevated levels of trichloroethene (TCE) and benzene. This resulted in a shutdown of this supply well and further environmental sampling in the vicinity of the well.

A surface water sample was collected from the PTI property on March 28, 1990 by Sellersville Borough. This sample was obtained from the discharge point of an 18-inch-diameter corrugated pipe that emerges from the southern end of the landfill area into an unnamed intermittent stream. The sample results showed high amounts of TCE (30 ug/l) and 1,1,1-trichloroethane (1,1,1-TCEA) (54 ug/l) in the surface water that flowed out of this pipe. SBMWW supply well no. 5 was also sampled on March 28. This time, the sample results showed less than 0.5 ug/l of TCE and 1,1,1-TCEA.

The site was identified by the Bucks County Health Department and referred to the Pennsylvania Department of Environmental Resources (PA DER) for further investigation.

PA DER inspected the site and PTI property on May 16, 1990. After inspecting the site, PA DER referred the site to EPA. Based on the analytical data submitted, PA DER recommended further action.

Water for the residents of the study area is supplied by five public water supply companies and private domestic water supply wells. The public supplies utilize surface water and groundwater as their sources.

Surface runoff from the site is toward two on-site intermittent tributaries that join on site. The intermittent stream resulting from the confluence of these tributaries flows into the East Branch of Perkiomen Creek. The East Branch of Perkiomen Creek is classified as a trout-stocked fishery.

About two acres of wetland are located along the on-site streams.

ARCS III conducted a site inspection of the Inactive Landfill Site in December 1991. Activities included sampling on-site soils, sediment, and surface water and off-site groundwater. A detailed Quality Assurance Review and a Toxicological Evaluation of the sample results from this inspection can be found in sections 7.0 and 8.0, respectively

SECTION 2.0

2.0 THE SITE

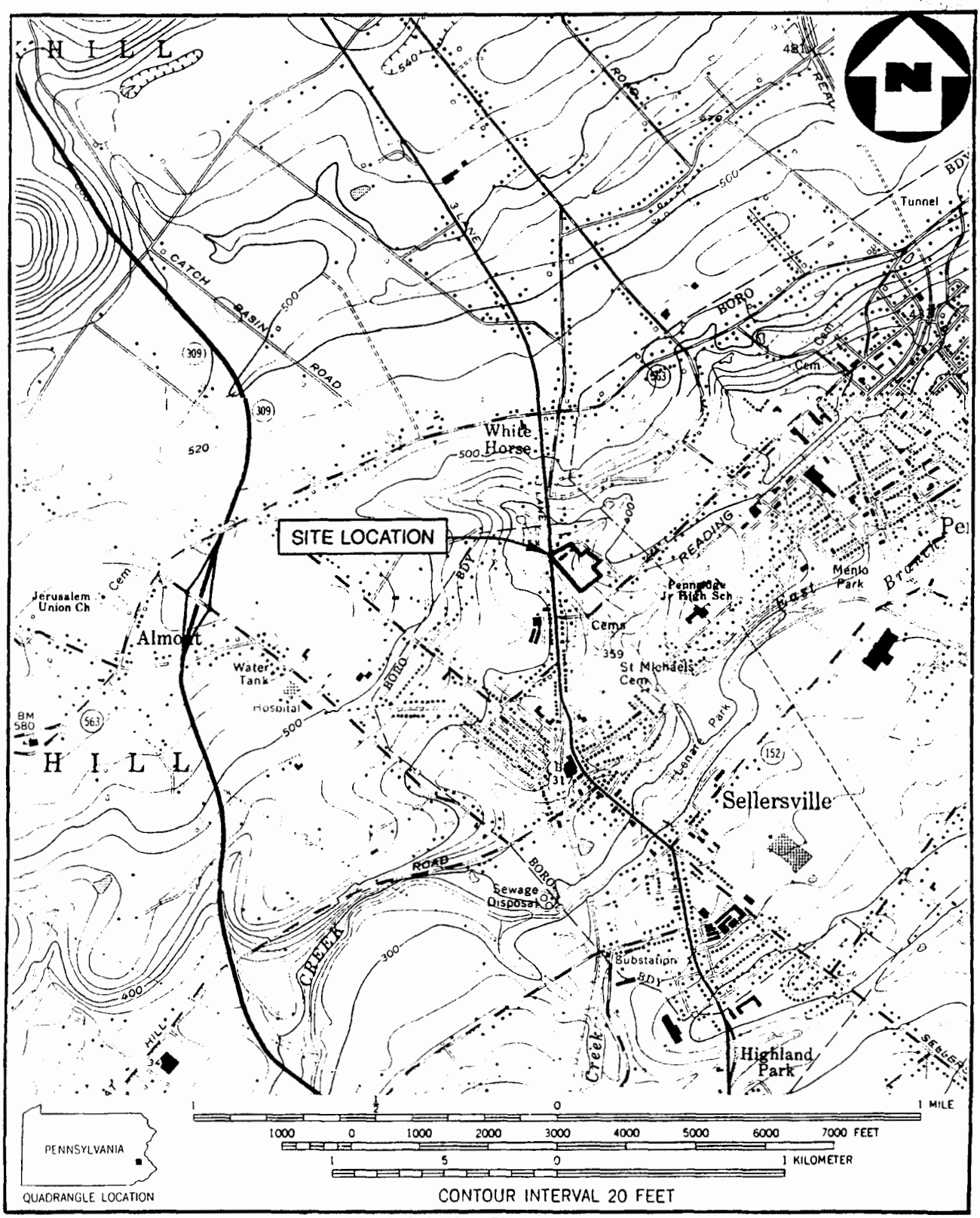
2.1 LOCATION

The site is located in the southeastern corner of Twelfth Street and Old Route 309 in Sellersville, West Rockhill Township, Bucks County, Pennsylvania (see figure 2.1, page 2-2). The site can be found at the intersection of 40° 18' 48" north latitude and 75° 15' 15" west longitude on the Telford, Pennsylvania topographic quadrangle map. As measured from the northwestern corner of the Telford, Pennsylvania topographic map, the site is 1-1/8 inches south and 8-5/8 inches east.[1]

2.2 SITE LAYOUT

The PTI property consists of five separate parcels that combined cover approximately 11 acres (see figure 2.2, page 2-3). Parcel no. 1 (lot no. 8) is rectangular in shape; it runs along Twelfth Street between Old Route 309 and Franklin Avenue and occupies most of the northern one-third area of the PTI property. This parcel contains the landfill site, which is the area of concern. Parcel no. 2 (lot no. 10), south and downslope of lot no. 8, accounts for a majority of the southern two-thirds portion of the PTI property; a small extension of this square parcel extends to the east, bordering Franklin Avenue. This extension is upgradient of the remainder of the site. Parcel no. 3 (lot no. 291) is a very small strip of land bordering Old Route 309 and the extreme western side of the PTI property. Parcel no. 4 (lot no. 292) is triangular in shape and is wedged between lot no. 10 to the east and lot no. 291 to the west. Parcel no. 5 (lot no. 7) is also triangular in shape and is located north of lot nos. 291 and 292; it also borders Old Route 309 in the northwestern area of the PTI property The PTI property is predominantly wooded, with the exception of the northern one-third portion of the property, which is vacant.[2,3] Access to the entire site and property is unrestricted.[2]

Two small unnamed tributaries to the East Branch of Perkiomen Creek flow through the PTI property. One intermittent tributary (the secondary stream), flows from the northeastern corner of the property southwestward and borders the eastern and southern sides of the landfill area. This stream merges with another unnamed intermittent tributary (the primary stream) that flows from the west to the southeast through the PTI property. The confluence of the two streams is located approximately 250 feet south and downslope of the landfill area. The intermittent primary stream continues to flow after the confluence southward and exits the property on the southern border.[2,3]



SOURCE: (7.5 MINUTE SERIES) U.S.G.S. TELFORD & QUAKERTOWN, PA., QUADS.

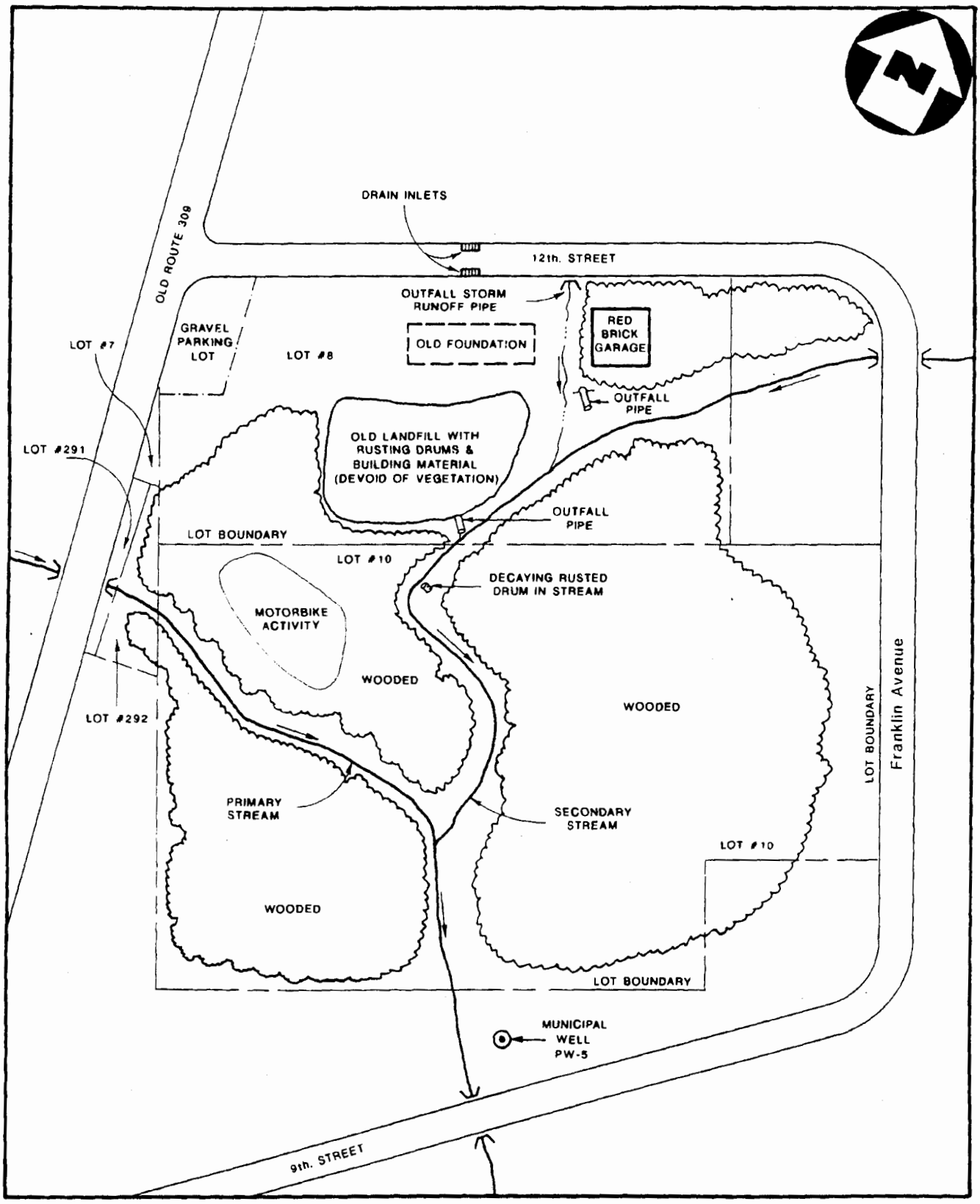
SITE LOCATION MAP

INACTIVE LANDFILL SITE, SELLERSVILLE, PA.

SCALE 1: 24000

FIGURE 2.1

NUS CORPORATION



SITE SKETCH

INACTIVE LANDFILL SITE, SELLERSVILLE, PA.

(NO SCALE)

FIGURE 2.2

NUS CORPORATION

A Halliburton Company

Access to the site can be gained by a gravel parking area located in the northwestern corner of the PTI property, in lot no. 8, near the intersection of Old Route 309 and Twelfth Street. Adjacent to the gravel parking area is the debris of an old building that has been demolished and the building's remaining foundation. This area is surrounded by vegetation. A drainage ditch located east of the building debris receives runoff from Twelfth Street storm culverts. The drainage ditch is north-south trending and discharges into the secondary stream approximately 25 feet upstream of the landfill area. East of the drainage ditch, in the northeastern section of lot no. 8, is an old red-brick building that is used to house Faith Baptist Church supplies. Approximately 25 feet south of this building is a six-inch-diameter polyvinyl chloride (PVC) pipe that discharges into the secondary stream about 50 feet upstream of the landfill area. The origins of the pipe are unknown.[2,3]

The landfill area, which is void of vegetation, consists of demolition building debris (bricks, concrete, steel, and wood), other metal scraps, and a few 55-gallon drums containing a black tar-like substance. This area is located approximately 200 feet south of Twelfth Street in the central-southern portion of lot no. 8; it is approximately 60 by 80 feet in size. There are no records or information to indicate whether or not the landfill has a protective liner or cap to prevent migration of the landfill's contents. An 18-inch-diameter corrugated pipe protrudes from the southern area of the landfill and discharges into the secondary stream. A low flow of water was observed discharging out of this pipe; the origins of the pipe are unknown. Bordering the landfill on the west is an area with obvious mountain bike activity and trails. During the site visit, a rusted, decaying drum was observed approximately 150 feet downstream of the landfill area in the middle of the secondary stream.[2,3]

2.3 OWNERSHIP HISTORY

The 11-acre property was purchased by PTI in 1968. According to the preliminary assessment report, Richard Coll, of Sellersville Borough, reported that the property was purchased in five different parcels.[2]

PTI purchased lot no. 8, which occupies a majority of the northern one-third portion of the property, from Ulysees Nace in 1968. This 2.71-acre land parcel was leased by Mr. Nace in the early 1940s to Lamar Barndt. The same parcel was later leased by PTI to an automotive mechanic, Timothy Auckland. PTI purchased lot no. 7, a very small parcel located at the northwestern portion of the property, in 1968 from the borough of Sellersville. PTI purchased lot no. 291, a very thin land parcel along Old Route 309 on the western edge of the property, in 1968 from Bucks County. PTI purchased lot no. 292, at the western edge bordering lot nos. 8, 10, and 291, from John Morrow in 1968. PTI purchased lot no. 10, a 7.03-acre land parcel at the southern end of the property, from Sam Doughty in 1968.[2]

The records of ownership from the Bucks County Courthouse Tax Mapping Department do not date before 1940.[2]

2.4 SITE USE HISTORY

The undeveloped subject site is currently owned by PTI. During the early 1940s, lot no. 8 was leased to Mr. Barndt; the exact date is unknown. Mr. Barndt owned a waste-hauling business and used the lot to store his trucks. He was allegedly contracted by Ametek - United States Gauge, of Sellersville, to haul and dispose of United States Gauge's wastes. Ametek - United States Gauge manufactured aircraft dials with a radium-based paint. During the early 1970s, lot no. 8 was leased by PTI to Mr. Auckland, who utilized the on-site garage and allegedly dumped waste oil and radiator fluid on the grounds of the site. The exact dates that Mr. Auckland leased the lot are not known.[2,4,5]

In the mid-1980s, PTI intended to sell the property. During the same time, an article was published in a local paper that reported information about the site's past use, alleging that radium-paint waste was once dumped on the lot. RSO, of Laurel, Maryland, was hired by PTI to conduct an environmental assessment of the property before PTI attempted to sell the property. (This sale has never occurred.)[4]

The red-brick garage on lot no. 8 is currently rented by the Faith Baptist Church, of Sellersville, to house church supplies.[3]

Lot no. 7, which was purchased by PTI from the borough of Sellersville, has always been undeveloped land. Lot no. 291 is also undeveloped land; it was purchased from Bucks County in 1968. Lot no. 292, which is undeveloped land, was purchased in 1968 by PTI from John Morrow; this lot was never developed. Lot no. 10 was purchased in 1968 from Sam Doughty; this land is undeveloped.[2]

2.5 PERMIT AND REGULATORY ACTION HISTORY

On December 19, 1989, SBMWW municipal supply well no. 5, located 150 feet south of PTI's property, was sampled during a routine monitoring of the utility's supply wells. The sample analyses, which were conducted by Ambler Laboratories, of Ambler, Pennsylvania, revealed a concentration of 22.6 ppb of TCE and a concentration of 5.3 ppb of benzene (see appendix E for sample results). This resulted in the shutdown of the supply well. The exact date the well was shut down is not known.[2]

On March 28, 1990, Sellersville Borough water technicians collected surface water samples from the PTI property due to the shutdown of supply well no. 5. The surface water sample was obtained from a location adjacent to the discharge point of the 18-inch-diameter corrugated pipe that protrudes from the southern end of the landfill area into the secondary stream. The sample was found to contain 1,1,1-TCEA at a concentration of 54 ug/l, and TCE was found at a concentration of 30 ug/l. A groundwater sample was taken of the raw water at SBMWW municipal supply well no. 5 after the well was purged for approximately two hours. The results of the groundwater samples for the municipal supply well no. 5, taken on March 28, 1990, revealed less than 0.5 ug/l of 1,1,1-TCEA and TCE (see appendix E for laboratory analyses of the samples). This well was placed back into operation in September 1991. During the sampling at the PTI property, Mr. Coll, the Sellersville Borough manager, dug approximately one foot into the landfill area to try to discover what was buried there; he found old aircraft dials. These dials were not seen during the ARCS III site visit.[2,3]

The landfill was identified by the Bucks County Health Department, and the site was referred to PA DER on February 28, 1990 for further investigation. PA DER inspected the old landfill on May 16, 1990. After inspecting the site, PA DER referred the site to EPA for further action.[3]

According to available information, the site has never held any permits.[2,3]

The HALLIBURTON NUS Field Investigation Team 3 (FIT 3) conducted a preliminary assessment of the subject site on December 10, 1990.[2] HALLIBURTON NUS ARCS III conducted a site reconnaissance of the subject site on November 6, 1991, and the site inspection was conducted on December 5, 1991.[3,6]

2.6 REMEDIAL ACTION TO DATE

In 1985, RSO, of Laurel, Maryland, was contracted by PTI to perform an environmental assessment of the site. A minor radiation contamination problem was detected in the landfill area. RSO recommended that the residual radioactivity be removed before the sale of the property. RSO removed a plastic bag containing a jar of radium paint, pieces of a broken jar, and several cubic feet of contaminated soil. The material was transported to an authorized radioactive waste disposal site in the state of Washington.[2,4]

Following the removal of the contaminated materials, radiation levels on the lot were determined to be in the range of normal background radiation. The PA DER Bureau of Radiation Protection was satisfied that the radiation problem had been eliminated, and the property could be released for unrestricted use. The exact location on the site from where this material was removed is unknown.[2,4]

SECTION 3.0

3.0 ENVIRONMENTAL SETTING

3.1 WATER SUPPLY

Residents of the study area rely on groundwater and surface water sources for their drinking water supply. Five public water supply agencies provide water to various portions of the study area. Those residents not served by one of these public water suppliers are assumed to maintain private wells or springs for their drinking water supply. No public water supply surface intakes were identified within 15 stream miles downstream of the site.[1,7,8,9,10,11]

SBMWW provides water to the borough of Sellersville and to small areas adjacent to the borough. Water is obtained from one surface intake and two wells. SBMWW provides water to 1,506 domestic connections. No water was purchased from or sold to other public water suppliers in the latest report year, 1989; however, there is a permanent interconnection with the Perkasie Borough Water Authority (PBWA). Available information for the SBMWW sources is listed below.[1,7,9,10,12]

Source	Diameter (inches)	Depth (feet)	Yield [gallons per day (gpd)]	Approximate Distance and Direction from Site
Well no. 4	8	500	600,000	0.75 mile south
Well no. 5	8	500	400,000	≤800 feet southeast
Intake	N/A	N/A	N/A	1.75 miles northwest

Based on geologic mapping, both wells are expected to produce from the Triassic age Brunswick Formation. The intake receives no surface drainage from the site. Report year 1989 production and allocation data for the SBMWW system and sources are listed below.[1,7,9,10,12]

Source	Gallons Per Day	Number of Days	Gallons Per Year	Percent of Total
Well no. 4	400,000	365	146,000,000	61.9
Well no. 5	113,000	115	12,995,000	5.5
Intake	280,000	275	77,000,000	32.6
Total	---	---	235,995,000	100.0

PBWA provides water to the borough of Perkasie and to small areas adjacent to the borough. PBWA obtains all its water from seven wells and supplies 2,068 domestic connections. No water was purchased from or sold to other public water suppliers in the latest report year, 1989; however, there is a permanent interconnection with SBMWW. Available information for PBWA wells is listed below.[1,7,9,10,13]

Well No.	Diameter (inches)	Depth (feet)	Yield (gpd)	Approximate Distance and Direction from Site
2	8	141	92,000	2.3 miles northeast
4	8	331	84,000	1.75 miles northeast
5	10	303	109,000	1.9 miles northeast
6	12	300	306,000	1.9 miles northeast
9	10	375	76,000	2.1 miles northeast
10	10	400	218,000	1.1 miles southeast
11	16	315	---	1.4 miles east-southeast

Based on geologic maps and available well records, these wells produce primarily from the Brunswick Formation. Report year 1989 production and allocation data for the PBWA system and wells are listed below.[1,7,9,10,13]

Well No.	Gallons Per Day	Number of Days	Gallons Per Year	Percent of Total
2	21,500	365	7,847,500	3.5
4	46,100	365	16,826,500	7.4
5	103,000	365	37,595,000	16.6
6	256,000	365	93,440,000	41.3
9	60,500	365	22,082,500	9.8
10	208,000	172	35,776,000	15.8
11	181,000	69	12,489,000	5.5
Total	---	---	226,056,500	99.9

The Hilltown Township Water and Sewer Authority (HWSA) provides water to small portions of Hilltown Township and to Silverdale Borough. HWSA obtains all its water from three wells and supplies 312 domestic connections. No water is purchased from or sold to other public water suppliers; however, there is an emergency interconnection with Telford Borough. Available information for HWSA wells is listed below.[1,7,9,10,14,15]

Well No.	Diameter (inches)	Depth (feet)	Yield (gpd)	Approximate Distance and Direction from Site
1	8	318	95,000	1.6 miles southeast
2	8	457	135,000	2.45 miles east
5	8	360	---	3.1 miles southeast

Based on geologic maps and on a hydrogeologic study performed for HWSA, these wells produce from the Triassic age Brunswick and Lockatong Formations. Report year 1989 production and allocation data for the HWSA system and wells are listed below.[1,7,9,10,14,15]

Well No.	Gallons Per Day	Number of Days	Gallons Per Year	Percent of Total
1	31,400	22	690,800	1.9
2	52,300	355	18,566,500	52.3
5	52,400	310	16,244,000	45.8
Total	---	---	35,501,300	100.0

The Telford Borough Water Authority (TBWA) provides water to the borough of Telford and to small portions of the surrounding townships. TBWA obtains all its water from four wells and supplies 2,323 domestic connections. TBWA also maintains a fifth well (no. 6) that has not been used for supply in the most recent report years. TBWA does not purchase from or sell to other public water suppliers but maintains an interconnection with the North Penn Water Authority (NPWA). Available information for TBWA wells is listed below.[1,7,9,10,16,17]

Well No.	Diameter (inches)	Depth (feet)	Yield (gpd)	Approximate Distance and Direction from Site
1	10	240	200,000	3.15 miles south
3	10	400	220,000	2.9 miles south
4	10	524	300,000	2.8 miles southwest
5	10	523	280,000	2.85 miles southwest
6	---	---	---	2.4 miles south

Based on geologic maps, TBWA wells are expected to produce primarily from the Brunswick Formation. Report year 1989 production and allocation data for the TBWA system and wells are listed below.[1,7,9,10,16,17]

Well No.	Gallons Per Day	Number of Days	Gallons Per Year	Percent of Total
1	76,300	365	27,849,500	15.4
3	160,000	365	58,400,000	32.3
4	97,900	365	35,733,500	19.8
5	161,000	365	58,765,000	32.5
6	0	0	0	0.0
Total	---	---	180,748,000	100.00

The NPWA main system provides water to the borough of Souderton and to surrounding areas in Hilltown and Franconia Townships. Water for the NPWA main system is obtained from approximately 50 wells and is supplemented by water purchased from the Pennsylvania-- American Water Company (PAWC) and the North Wales Water Authority (NWWA). NPWA maintains a permanent interconnection with TBWA; however, no sales or purchases are recorded for this interconnection. The NPWA main system provides water to 13,644 domestic connections, mainly in Montgomery County. Three of the NPWA main system wells are located within four miles of the site. Available information for these wells is listed below.[1,7,8,9,10,18,19]

Well No.	Diameter (inches)	Depth (feet)	Yield (gpd)	Approximate Distance and Direction from Site
S-2	6	216	84,900	3.75 miles south
S-4	8	300	23,000	3.65 miles south
S-12	---	---	35,500	3.9 miles south

Based on geologic maps, these wells are expected to produce from the Brunswick and Lockatong Formations. Report year 1989 production and allocation data for the NPWA main system and these three wells are listed below.[1,7,8,9,10,18,19]

Well No.	Gallons Per Day	Number of Days	Gallons Per Year	Percent of Total
S-2	97,900	365	35,733,500	1.8
S-4	28,300	365	10,329,500	0.52
S-12	59,000	108	6,372,000	0.32
Main System Total	5,450,000	365	1,989,250,000	100.00

A non-interconnected system of NPWA, known as the East Rock Hill or Ridge Run system, supplies water to a housing development in East Rockhill Township, approximately 1.5 miles north of the site. This subdivision consisted of 65 homes in 1988; a total of 196 homes were planned. Two wells are located within the subdivision: ER-73, approximately 1.6 miles north of the site, and NP-74, approximately 1.8 miles north of the site. No production or construction data are available for well NP-74. Well ER-73 is reported to be 475 feet deep and completed in the Brunswick Formation. Available production data for well ER-73 (report year 1988) indicate that this well produced an average of 17,647 gpd.[1,7,9,18]

Private wells within the study area produce from the Triassic age Brunswick Formation, Lockatong Formation, or diabase. Within East Rockhill, Hilltown, and West Rockhill Townships, 44 percent of wells produce from the Brunswick, 27 percent produce from the Lockatong, and eight percent produce from diabase. The remaining 11 percent of wells produce from formations that are unreported or are inaccurately reported, based on geologic maps. Wells range from less than 50 to over 400 feet deep; the majority of wells are between 100 and 300 feet deep. Their yields range from zero to more than 100 gallons per minute (gpm); most yield between five and 50 gpm. The nearest home well is less than 0.1 mile north of the site.[1,3,10,20]

The following table (3.1) summarizes populations utilizing groundwater for potable supplies within the study area.[1,7,8,9,10,11,12,13,14,15,16,17,18,19,20]

Table 3.1

Population Using Groundwater

Name of Supplier	0 to 1/4 mile	1/4 to 1/2 mile	1/2 to 1 mile	1 to 2 miles	2 to 3 miles	3 to 4 miles
SBMWW Supply Wells	Well No. 5 248 people		Well No. 4 2,797 people			
PBWA Supply Wells				Well Nos. 4, 5, 6, 10, and 11 5,372 people	Well Nos. 2 and 9 825 people	
HWSA Supply wells				Well No. 1 18 people	Well No. 2 490 people	Well No. 5 429 people
TBWA Supply Wells					Well Nos. 3, 4, 5, and 6 5,896 people	Well No. 1 1,073 people
NPWA Supply Wells				Well Nos. ER-73 and NP-74 195 people		Well Nos. S-2, S-4, and S-12 1,005 people
Private Domestic Wells	15 people	105 people	561 people	1,470 people	2,487 people	3,981 people
Total	263 people	105 people	3,358 people	7,055 people	9,698 people	6,488 people

3.2 SURFACE WATERS

The eastern portion of the PTI property, between the secondary intermittent stream and Franklin Avenue, has the highest elevation of the overall PTI property. Surface runoff in this area drains to the west into the secondary stream. The northern portion of the PTI property is generally level; however, it is higher in elevation than the remainder of the property to the west and south. Surface runoff from this area would drain to the west into the primary intermittent stream and to the south into the secondary stream.[1,2,3]

The landfill area is relatively flat and level; consequently, surface runoff is radial. The small unnamed secondary stream flows along the eastern and southern banks of the landfill. It flows from the northeastern corner of the PTI property southwestward toward the landfill, where it changes direction and meanders through the PTI property in a southward direction. The secondary stream merges with the unnamed primary stream approximately 200 feet south of the landfill area. This primary stream flows from the western area of the PTI property southeastward to the confluence of the two streams. Following the confluence, the primary intermittent stream flows southeastward for approximately 3,750 stream feet until it flows into the East Branch of Perkiomen Creek, a trout-stocked fishery. The East Branch of Perkiomen Creek flows through Lenape Park 0.6 mile southeast of the site and continues 16.5 stream miles southwestward, where it flows into Perkiomen Creek.[1,2,3]

In the northern area of the PTI property, 50 feet upstream of the landfill, a six-inch-diameter PVC pipe discharges into the secondary stream. Information about the pipe was researched; however, the origin of the pipe could not be ascertained.[3]

Protruding from the southern side of the landfill is an 18-inch-diameter corrugated pipe that also discharges into the secondary stream approximately 75 feet downstream of the PVC pipe. The origin of the corrugated pipe was researched; however, this information could not be ascertained. A decayed, rusted drum was observed in the secondary stream, approximately 150 feet south of the landfill.[1,2,3]

According to Charles Andrichyn, of Park Ten, Incorporated, SMC Martin consultants surveyed the subject property in the late 1980s and identified approximately two acres of wetlands on site (see appendix F).[5,21]

3.3 HYDROGEOLOGY

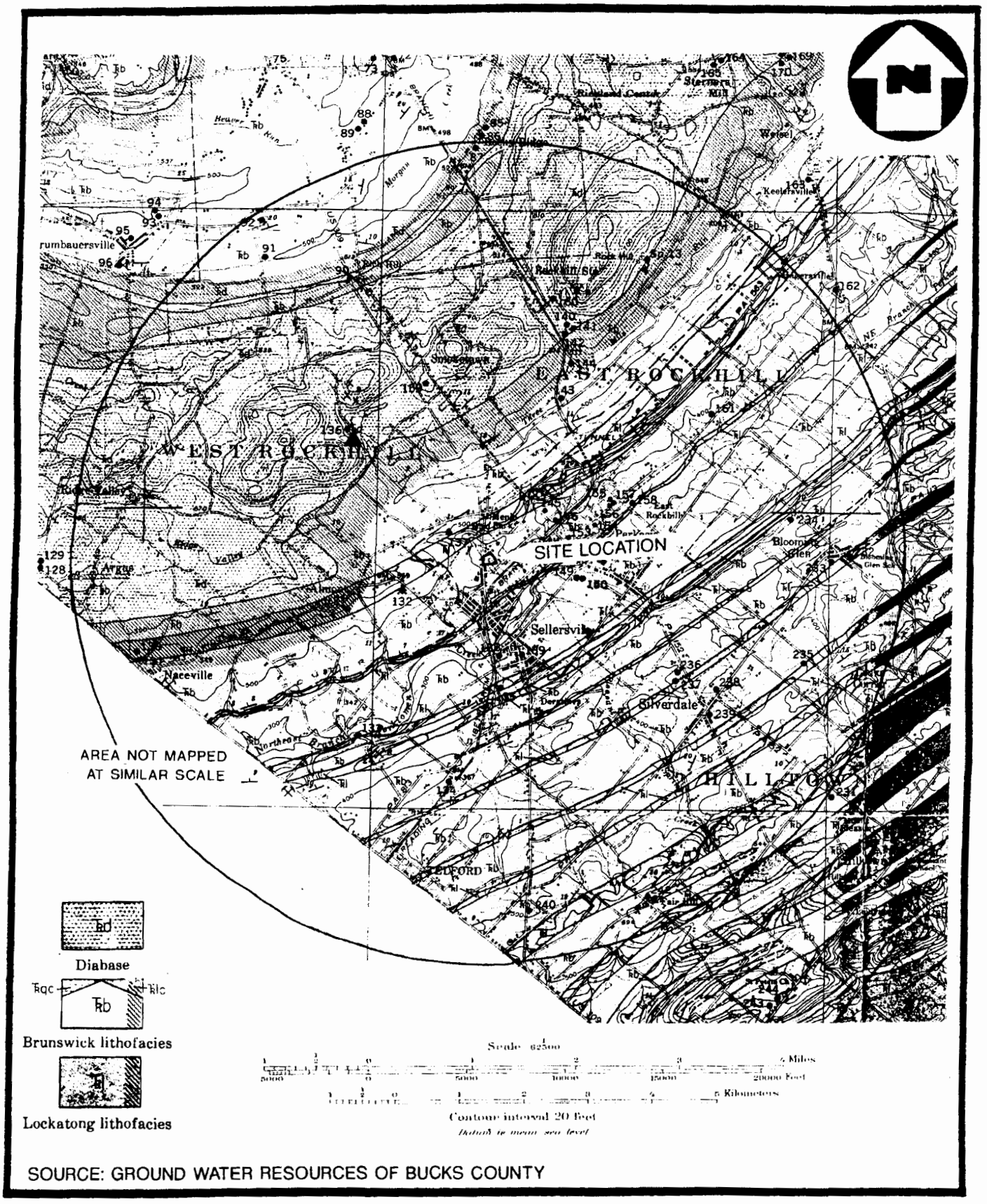
The geologic and hydrogeologic conditions in the study area were researched as part of the site inspection. A preliminary literature review was conducted to determine surface and subsurface geologic conditions, soil character, and the status of groundwater transport and storage.

3.3.1 Geology

The Inactive Landfill Site and surrounding study area lie within the Triassic Lowlands Section of the Piedmont Physiographic Province. The topography is a slightly uplifted peneplain of easily eroded inclined strata forming gently rolling hills, ridges, and valleys. More resistant layers of igneous rock form residual ridges and uplands with higher elevations and steeper slopes. Elevations within the study area range from less than 300 to more than 800 feet. The site lies within a small stream valley at an approximate elevation of 340 to 360 feet. The central and southwestern parts of the study area are drained by the East Branch of Perkiomen Creek and its tributaries. The northern and eastern parts of the study area are drained by tributaries of the Delaware River.[1,10]

The study area is underlain by the Newark Group, a thick sequence of Late Triassic age sedimentary rocks that have been intruded in places by diabase dikes and sills. The sediments consist mainly of interbedded shale and sandstone, with subordinate amounts of conglomerate, arkose, and argillite. Within the study area, beds strike from northeast to southwest and dip approximately 10 degrees to the northwest (see figure 3.1, page 3-9). The sedimentary rocks are relatively unfolded, with the exception of some areas near large faults and large intrusive bodies. Faulting is common; however, no major faults are mapped within the study area.[10]

The geologic unit directly underlying the site is the Late Triassic age Brunswick Formation of the Newark Group (see figure 3.1, page 3-9). It has a fairly uniform lithology consisting of irregularly bedded soft red argillaceous shale locally interbedded with fine-grained red sandstone. The lower beds of the Brunswick may include a considerable thickness of hard red argillite and occasional beds of tough gray shale. Shales of the Brunswick do not display prominent cleavage but contain numerous cracks or joints commonly inclined at high angles to the plane of bedding. The Brunswick Formation has been extensively intruded by diabase dikes and sills, and the shale near these intrusives has been altered to a hard, dark-colored hornfels. The Brunswick has a stratigraphic thickness of about 9,000 feet, but the true vertical thickness at any given location is probably about 6,000 feet or less. It crops out as a series of northeast-southwest-trending bands that alternate with thinner bands of the Lockatong Formation in the southeastern two-thirds of the study area (see figure 3.1, page 3-9). Metamorphosed or altered rocks of the Brunswick are present about one to 1.5 and three to 3.5 miles northwest of the site, adjacent to a large diabase intrusion.[10]



SOURCE: GROUND WATER RESOURCES OF BUCKS COUNTY

GEOLOGIC MAP
INACTIVE LANDFILL SITE
SELLERSVILLE, BUCKS CO., PA

FIGURE 3.1

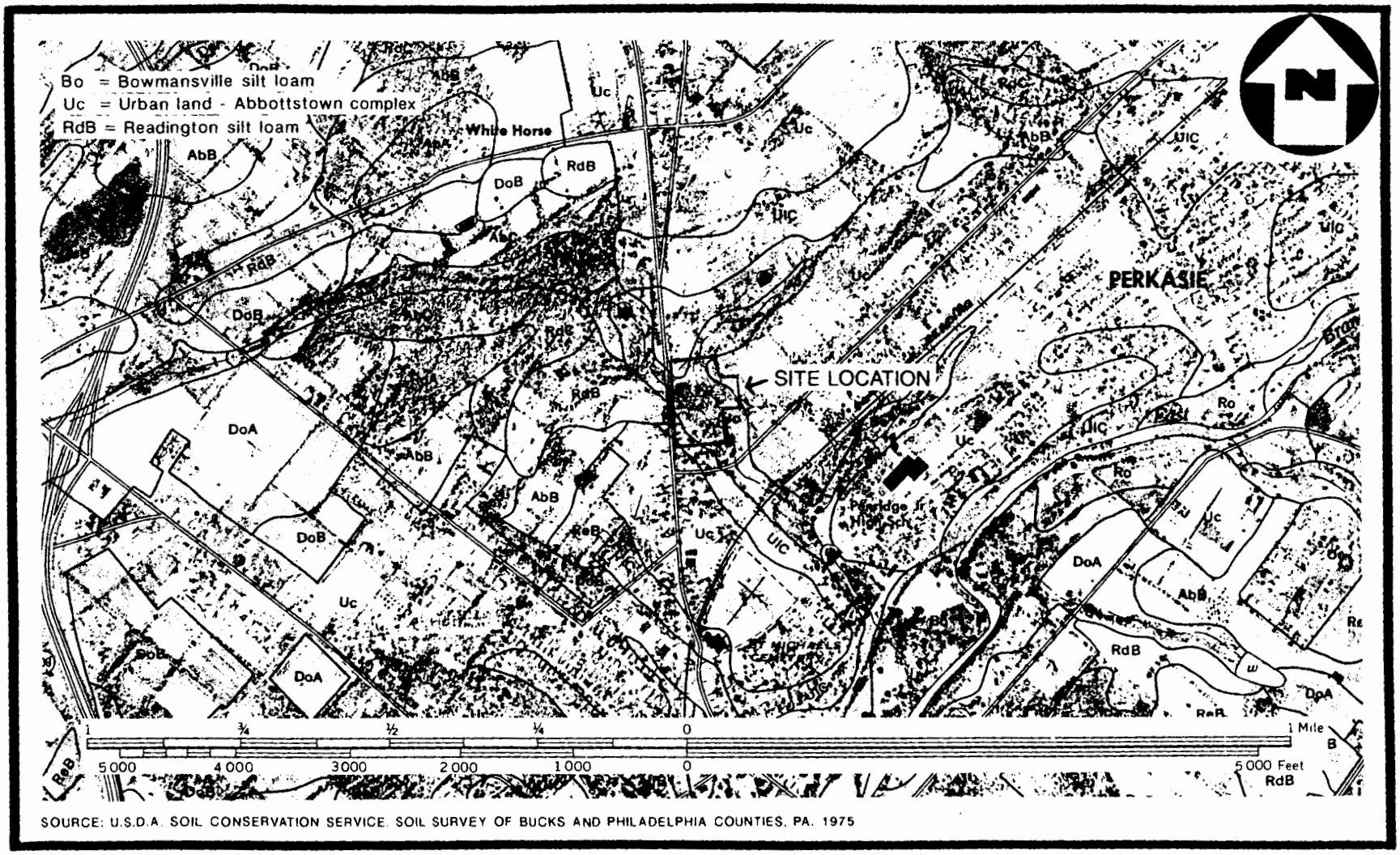
HALLIBURTON NUS
Environmental Corporation

Stratigraphically underlying the Brunswick Formation is the Late Triassic age Lockatong Formation of the Newark Group. The nearest outcrop is located approximately 0.2 mile northwest of the site (see figure 3.1, page 3-9). Several more bands of the Lockatong crop out between bands of the Brunswick Formation to the southeast of the site. In general, the Lockatong conformably underlies the Brunswick; however, an appreciable thickness of Lockatong beds is extensively interfingered with the lower beds of the Brunswick. The Lockatong Formation consists mainly of dark gray to black, thick-bedded argillite (or mudstone) and occasional zones of thin-bedded black shales. The rocks are evenly bedded and very fine grained. Thin layers of impure limestone or calcareous shale are present locally, and small crystals of calcite and pyrite are numerous in some of the argillite beds. Estimates of the total thickness of the Lockatong Formation range from approximately 2,000 to 4,000 feet. The thickness of the individual layers or units of the Lockatong within the study area, based on the outcrop width and dip of bedding, is from several tens of feet to several hundred feet.[10]

Stratigraphically younger than both the Brunswick and the Lockatong Formations are Late Triassic age diabase intrusions. The diabase crops out within the study area in a wide curving band located approximately 1.5 to three miles northwest of the site (see figure 3.1, page 3-9). In this configuration, the diabase has intruded the Brunswick Formation as a sill that is conformable or closely conformable with the sediment bedding. In other areas, the diabase is intruded as nearly vertical dikes that cut across bedding. The diabase is dark gray to black and has a very uniform lithology that includes nearly equal amounts of plagioclase feldspar and augite, with ilmenite, quartz, and apatite as accessory minerals. The texture is fine to very fine grained in thinner dikes and medium to coarse grained in larger dikes and sills. Based on well data, the diabase within the study area is less than 100 feet thick near its southeastern edge and several hundred to more than 1,000 feet thick closer to the center of its outcrop.[10]

3.3.2 Soils

The soil units mapped at the Inactive Landfill Site are the Bowmansville silt loam, the Urban land - Abbottstown Complex, and the Readington silt loam (see figure 3.2, page 3-11). Native soil profiles have been disturbed or altered in areas of the site classified as Urban land - Abbottstown Complex. These disturbances and alterations have resulted mainly from the construction of buildings and the addition of fill material.[2,22]



SOILS MAP
INACTIVE LANDFILL SITE
SELLERSVILLE, BUCKS CO., PA

FIGURE 3.2

HALLIBURTON NUS
Environmental Corporation

The Bowmansville silt loam, zero to five percent slopes, covers approximately 85 percent of the site. It is a deep, poorly drained, nearly level soil found on floodplains of streams. Bowmansville soils formed in loamy alluvium that washed from upland soils underlain by red and brown shale and sandstone. In a representative soil profile, the surface or plow layer consists of about eight inches of dark brown silt loam. The subsoil is about 23 inches thick and consists of reddish-brown to reddish-gray silt loam. The upper part of the substratum is about 19 inches thick and consists of pinkish-gray silt loam. The lower part of the substratum below a depth of 50 inches is stratified sand and gravel. Permeability is moderately slow (0.2 to 0.63 inch per hour), and the soil reaction is strongly to slightly acid (pH, 5.1 to 6.5).[22]

The Urban land - Abbottstown Complex, zero to eight percent slopes, covers approximately 10 percent of the site. It is present on the higher elevations of the site in the northern and eastern parts and includes the landfill area of the site. This soil complex consists of approximately 60 percent Urban land, 35 percent Abbottstown silt loam, and five percent other soils. It occurs in semi-built-up areas that are mainly underlain by shale bedrock.[22]

In Urban land, identification of the soils is not practical for various reasons. Many areas are covered by buildings and other structures. Most Urban land areas have been smoothed, and the original material has been disturbed, filled over, or otherwise destroyed. Properties such as permeability and soil reaction are too variable to estimate and must be determined in the field on an individual site basis.[22]

Abbottstown silt loams are deep, somewhat poorly drained, nearly level to sloping soils found on uplands. They formed in loamy material weathered from red and brown shale and sandstone. In a representative soil profile, the surface or plow layer consists of dark brown silt loam about eight inches thick. The subsoil is about 34 inches thick and consists of reddish-brown silt loam, shaly silt loam, and shaly clay loam in the lower part. The substratum consists of about four inches of reddish-brown very shaly silty clay loam. Fractured shale bedrock typically underlies the substratum at a depth of 46 or more inches. The permeability of the Abbottstown silt loam is slow (less than 0.2 inch per hour), and the soil reaction is very strongly acid to medium acid (pH, 4.5 to 6.1).[22]

The Readington silt loam, three to eight percent slopes, covers approximately five percent of the site in the southwestern corner. It is a deep, moderately well-drained, nearly level to sloping soil. It is found in valleys and on low ridges and formed in loamy material weathered mainly from shale, siltstone, and sandstone. In a representative soil profile, the surface or plow layer consists of dark brown silt loam about eight inches thick. The subsoil is about 42 inches thick and consists of reddish-brown heavy silt loam, silty clay loam, and shaly silty clay loam in the lower part. The substratum is about 10 inches thick and consists of reddish-brown, very shaly clay loam. Fractured dusky red shale bedrock is found at a depth of 60 inches or more. The permeability of the Readington silt loam is moderately slow (0.2 to 0.63 inches per hour), and the soil reaction is very strongly to slightly acid (pH, 4.5 to 6.5).[22]

3.3.3 Groundwater

Groundwater in the study area is found under water-table (unconfined) and artesian (semi-confined) conditions. Groundwater occurs under water-table conditions in the upper weathered zone of the various geological formations. Artesian aquifers are found at greater depths within the sedimentary rocks of the area, primarily in the Brunswick Formation. Essentially, all recharge of groundwater is from the infiltration of precipitation that falls on the outcrop area of the individual formations. Artesian aquifers receive recharge from the overlying water-table zone.[10]

Groundwater in the consolidated rocks of the study area is primarily stored in and transmitted through joints and fractures. Many of these openings have been enlarged by solution and weathering of the rock-forming minerals by circulating groundwater. Groundwater generally flows downward and laterally through the interconnected openings to areas of discharge such as springs, seeps, streambeds, and wells. Artesian aquifers discharge to wells or in places where the confining layers are absent or breached by higher permeability.[10]

The uppermost aquifer beneath the site is expected to occur within the weathered zone and weathered overburden of the Brunswick Formation. The Brunswick typically contains a water-table aquifer of low permeability in the highly weathered zone of the formation to depths of about 250 feet. Relatively permeable artesian aquifers consisting of beds of partly weathered rock, rarely more than 20 feet thick, occur to depths of about 600 feet. The water-table aquifer contains many more fractures than the artesian aquifers but has lower permeability because many of the openings in the near-surface rocks are filled with residual clay from weathered shale. The artesian aquifers are more permeable than the water-table aquifer but yield less water from storage. Most wells in the Brunswick draw water from water-table and artesian aquifers. The yield of such wells is related to the saturated thickness of the water-table aquifer penetrated and the rate at which the artesian aquifers receive recharge from the overlying water-table aquifer.[10]

The Brunswick Formation is the most important water-bearing formation within the study area for domestic, industrial, and municipal supplies. It is a consistently reliable source of moderate water supplies and is the producing formation in approximately 44 percent or more of the wells within the study area. Reported water yields from the Brunswick range from about two gpm to more than 200 gpm and average about 40 gpm.[10,20]

In general, the capacity of the Lockatong Formation to store and transmit water is very low. The formation contains both fracture and solution porosity where it has been faulted, jointed, and weathered. Groundwater in the Lockatong occurs under water-table conditions in the secondary openings down to the base of the weathered zone. At greater depths, layers of the Lockatong may function as confining units for aquifers in the interfingered beds of the brunswick Formation. The Lockatong provides sufficient water for domestic supplies, and approximately 27 percent of wells in the study area produce from this formation. Reported water yields range from approximately two to 25 gpm and average about 10 gpm.[10,15,20]

The diabase is the poorest aquifer in the area because its capacity to store and transmit water is extremely low. Virtually all water is contained within joints and fractures, some of which have been enlarged by frost action, roots of vegetation, or solution of minerals by circulating groundwater. Almost all water is obtained from the weathered zone, which usually extends to a depth of 50 feet or less and seldom exceeds 75 feet. The diabase is capable of providing sufficient water for domestic supplies; however, some wells are failures. Approximately 18 percent of wells within the study area produce from diabase. Reported yields from successful diabase wells range from approximately two to 45 gpm, with an average of about 23 gpm. If all wells (including failed wells) are included, the average yield is probably less than five gpm.[10,20]

The depth to groundwater at the site is expected to range from a few feet below the surface near the streams and in the floodplains to approximately 20 or more feet below the surface in the higher-elevation northern and eastern areas. This estimate is based on the surface topography of the site, the role of streambeds as water-table discharge areas, and the fact that the water-table surface is a subdued replica of the surface topography.[1,2,10]

The actual direction of shallow groundwater flow at the site is unknown but can be estimated based on the same criteria used to estimate the depth to groundwater. In general, the shallow groundwater flow direction is expected to be from the higher elevation areas of the site toward the streams that run through the site. In the northern part of the site containing the old landfill, this direction is toward the south or southeast. In the eastern part of the site, this direction is toward the west or southwest, and, in the southwestern part of the site, this direction is eastward. It is possible that pumping SBMWW well no. 5 could have an influence on the shallow groundwater flow direction at the site due to its proximity (less than or equal to 800 feet southeast) and relatively high yield (400,000 gpd). A more detailed hydrologic investigation would be necessary to determine the influence of this well on the shallow groundwater system at the site. Shallow groundwater at the site may provide recharge to deeper artesian aquifers in the area; however, addressing this relationship would also require a more detailed hydrologic investigation.[1,9,10,12]

3.4 CLIMATE AND METEOROLOGY

The subject site is located within the humid continental climate of the United States. The average annual temperature for Allentown, Pennsylvania, which is located approximately 19 miles north of the site, is 51.1°F. The average monthly temperatures range from 27.4°F in January to 74°F in July. The average annual precipitation for Allentown, Pennsylvania ranges from 2.83 inches in October to 4.29 inches in August. The average annual precipitation is 43.89 inches per year. The mean annual lake evaporation for the area of the site is approximately 34 inches. The net annual precipitation for the site area is approximately 9.89 inches. A two-year, 24-hour rainfall will produce approximately 3.25 inches of rain.[23,24,25]

3.5 LAND USE

The Faith Baptist Church is located approximately 300 feet north of the site. Approximately 900 feet south of the area of concern (the landfill) is SBMWW municipal supply well no. 5. Areas on the western side of the PTI property are undeveloped wooded land, and the southwestern areas are residential. The PTI property is surrounded by residential properties to the south, east, and north. An area located north of the site, on Twelfth Street, is zoned commercial and contains a beer and soda distributor store.[1,2,3]

Lenape Park, a Sellersville municipal park, is located 0.6 mile southeast of the site and may receive drainage from the subject site.[1]

3.6 POPULATION DISTRIBUTION

The estimated population within a zero- to 1/4 -mile radius of the subject site is 183 persons. Within a 1/4- to 1/2-mile radius of the subject site, the population is 732 persons. Within a 1/2- to one-mile radius of the subject site, the population is 2,580 persons. Within a one- to two-mile radius of the subject site, the population is 5,250 persons. Within a two- to three-mile radius of the subject site, the population is 4,075 persons. Within a three- to four-mile radius of the subject site, the population is 13,923 persons.[1]

The total number of people living within a zero- to four-mile radius of the subject site is 26,743. These figures are based on a house count of homes in the area multiplied by 3.0 persons per house.[1,26]

3.7 CRITICAL ENVIRONMENTS

Two federally listed endangered birds are expected to be found as transient species in the project area. They are the bald eagle (Haliaeetus leucocephalus) and the peregrine falcon (Falco peregrinus). There are no listed critical habitats for these species in the project area.[27]

In the late 1980s, about two acres of wetlands were identified on site by a consulting firm (see appendix F). Approximately 12 frontal miles of wetlands are along a 15-stream mile downstream distance from the subject site.[5,21,28]

SECTION 4.0

4.0 WASTE TYPES AND QUANTITIES

The Inactive Landfill Site was allegedly the site of waste disposal in the 1940s. Mr. Barndt, a local waste hauler, leased lot no. 8 during the 1940s to store his hauling trucks. It is alleged that Mr. Barndt was contracted to dispose of wastes from Ametek - United States Gauge, of Sellersville, and that he disposed of some of the wastes on lot no. 8. A preliminary assessment performed by HALLIBURTON NUS FIT 3 of Ametek - United States Gauge, Incorporated revealed that Ametek - United States Gauge, Incorporated manufactured precision parts, reels, and measuring and controlling apparatus. As of 1980, Ametek, Incorporated utilized the following chemicals for these operations: zinc and cadmium cyanide in plating operations, sodium bichromate to organic plate parts, sodium hydroxide in plating, cadmium zinc and cadmium oxide in electroplating, phosphoric and nitric, hydrochloric, sulfuric, and muriatic acids in plating and pickling operations, and TCE as a degreaser. Ametek - United States Gauge is currently active.[2,29]

Radiation contamination was a problem in the old landfill area. It was recommended that the residual radioactivity be removed before PTI sold the property. In 1985, RSO conducted an environmental assessment of the property and eventually removed a plastic bag containing a jar of radium paint, pieces of a broken jar, and several cubic feet of contaminated soil. This material was shipped to an authorized radioactive waste disposal site in the state of Washington.[2,4]

In March 1990, the Sellersville Borough took water samples from the site property owned by PTI. The first sample was taken from an 18-inch-diameter corrugated pipe that protrudes from the southern end of the alleged landfill located south of Twelfth Street. The samples from the pipe, analyzed by QC, Incorporated, of Southampton, Pennsylvania, revealed 1,1,1-TCEA at a concentration of 54 ug/l, and TCE was found at a concentration of 30 ug/l. The second sample was taken just south of the PTI property line at SBMWW municipal supply well no. 5. These samples revealed concentrations less than 0.5 ug/l for 1,1,1-TCEA and TCE.[2]

ARCS III sampling in December 1991 revealed elevated levels of tetrachloroethene (PCE) (up to 19 ppb), TCE (up to 11 ppb), 1,2-dichloroethene (1,2-DCE) (up to 34 ppb), 1,1-dichloroethane (1,1-DCEA) (up to 28 ppb), toluene (up to 100,000 ppb), ethylbenzene (up to 28,000 ppb), xylenes (up to 190,000 ppb), and Aroclor-1254 (6,200 ppb) in on-site soils. Inorganic analysis of on-site soil samples indicated concentrations of antimony (up to 239 ppm), cadmium (up to 45.40 ppm), chromium (up to 1,560 ppm), copper (up to 130,000 ppm), lead (up to 6,560 ppm), mercury (up to 60.50 ppm), vanadium (up to 507 ppm), zinc (up to 42,800 ppm), and cyanide (up to 10.50 ppm). Surface water discharge from the pipe exiting from the landfill area contained PCE (1 ppb), TCE (up to 5 ppb), 1,1,1-TCEA (up to 3 ppb), 1,2-DCE (up to 36 ppb), 1,1-DCEA (up to 2 ppb), and vinyl chloride (up to 21 ppb). Sediment samples collected near holes rusted in the pipe contained 1,2-DCE (up to 34 ppb) and 1,1-DCEA (up to 8 ppb). Analysis of surface water downstream from the discharge pipe revealed levels of PCE (9 ppb), TCE (up to 14 ppb), 1,1,1-TCEA (8 ppb), 1,2-DCE (up to 64 ppb), 1,1-DCEA (3 ppb), and vinyl chloride (23 ppb). Downstream sediments contained TCE (3 ppb), 1,1,1-TCEA (16 ppb), 1,2-DCE (76 ppb), and 1,1-DCEA (3 ppb). Sampling analysis of a downgradient municipal supply well revealed elevated levels of PCE (3 ppb), TCE (34 ppb), and 1,2-DCE (1 ppb).[6]

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	2803

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY *(Check as applicable)*

	SURFACE	WELL
COMMUNITY	A. ☐	B. ☒
NON-COMMUNITY	C. ☐	D. ☒

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ☐	B. ☒	C. ☒
D. ☐	E. ☐	F. ☒

03 DISTANCE TO SITE

municipal supply well
A. 0.17 (mi)

private domestic well
B. <0.1 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY *(Check one)*

☒ A. ONLY SOURCE FOR DRINKING ☐ B. DRINKING *(Other sources available)* *COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available)* ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION *(Limited other sources available)* ☐ D. NOT USED, UNUSABLE

02 POPULATION SERVED BY GROUND WATER 26,967

03 DISTANCE TO NEAREST DRINKING WATER WELL 0.06 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
approximately 0 to >25 (ft)	southeast in landfill area	approximately 0 to >25 (ft)	400,000 (gpd)	☐ YES ☒ NO

09 DESCRIPTION OF WELLS *(Including usage, depth, and location relative to population and buildings)*

Sellersville Borough Municipal Water Works supply well no. 5 is located 0.17 mile south of the landfill area, off Ninth Street. The well is eight inches in diameter and 500 feet deep. The yield of the well ranges between 37 gpm and 250 gpm between 200 and 500 feet below the surface grade, respectively.

10 RECHARGE AREA

☒ YES ☐ NO

COMMENTS: Infiltration of precipitation on site.

11 DISCHARGE AREA

☒ YES ☐ NO

COMMENTS: Streams on site

IV. SURFACE WATER

01 SURFACE WATER USE IN VICINITY *(Check one)*

☒ A. RESERVOIR, RECREATION DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Unnamed intermittent stream (primary)	☒	0.04 (mi)
Unnamed intermittent stream (secondary)	☒	0.004 (mi)
East Branch of Perkiomen Creek	☐	3/4 (mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 3,495 NO. OF PERSONS	B. 8,745 NO. OF PERSONS	C. 12,820 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION

0.04 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE

approximately 2,960

04 DISTANCE TO NEAREST OFF-SITE BUILDING

0.04 (mi)

05 POPULATION WITHIN VICINITY OF SITE *(Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)*

Land use in the area is a combination of residential and commercial.

SECTION 5.0

5.0 FIELD TRIP REPORT

5.1 SUMMARY

On Thursday, December 5, 1991, HALLIBURTON NUS ARCS III members Paul Davis, Linda Ciarletta, Charles Meyers, Donald Whalen, Richard Costello, and Gregory DeCowsky conducted a screening site inspection of the Inactive Landfill Site in Sellersville, Bucks County, Pennsylvania. Site access was granted by Charles Andrichyn and Cassin Craig, the owners of Park Ten, Incorporated. Park Ten, Incorporated is the current site property owner. Craig Wilhelm, the Sellersville Borough water specialist, was also present at the site to activate and deactivate supply well no. 5 so it could be purged and sampled. The weather during the inspection was clear and cold, with a high temperature of 35°F.

During the inspection, a total of 12 aqueous samples and 14 solid samples, including quality assurance (QA) samples, were taken (see figure 5.1, page 5-4). Mr. Andrichyn and Mr. Craig declined split samples and allowed photographs to be taken (see figure 5.3, page 5-8, and the photograph log, section 5.5).

5.2 PERSONS CONTACTED

5.2.1 Prior to Field Trip

Charles Andrichyn
Park Ten, Incorporated
Andrichyn Construction Corporation
West Fifth and Iron Streets
P.O. Box 846
Lansdale, Pennsylvania 19446
(215) 362-2715

Cassin W. Craig
Park Ten, Incorporated
484 Norristown Road
Blue Bell, Pennsylvania 19422
(215) 825-8400

Richard Coll
Sellersville Borough Manager
Borough of Sellersville
140 East Church Street
P.O. Box 308
Sellersville, Pennsylvania 18960
(215) 257-5075

Alan Frick
Sellersville Borough Engineer
Borough of Sellersville
140 East Church Street
P.O. Box 308
Sellersville, Pennsylvania 18960
(215) 257-5075

5.2.1 Prior to Field Trip (continued)

Lynnette Elser
Donna Santiago
U.S. EPA
841 Chestnut Building
Ninth and Chestnut Streets
Philadelphia, Pennsylvania 19107
(215) 597-8333
(215) 597-1105

Fred Walter
PA DER
Southeast Regional Office
Lee Park, Suite 6010
Conshohocken, Pennsylvania 19428
(215) 832-6212

5.2.2 At the Site

Craig Wilhelm
Sellersville Borough Water Specialist
140 East Church Street
Sellersville, Pennsylvania 18960
(215) 257-5075

5.2.3 Water Supply Well Information

The following off-site wells were sampled during the site inspection. For the location of these wells, see figure 5.2 (page 5-5). The completed well survey can be found in appendix C.

Pastor Lee Hollenback
Faith Baptist Church
North Main Street
Sellersville, Pennsylvania 18960
(215) 257-5031
Domestic supply
HW-1

Ex. 6

60

Sellersville Municipal Supply Well No. 5
Ninth Street
Sellersville, Pennsylvania 18960
(No phone)
Municipal supply, pretreatment
PW-1

ORIGINAL (Red)

5.2.1 **Prior to Field Trip (continued)**

Lynnette Elser
Donna Santiago
U.S. EPA
841 Chestnut Building
Ninth and Chestnut Streets
Philadelphia, Pennsylvania 19107
(215) 597-8333
(215) 597-1105

Fred Walter
PA DER
Southeast Regional Office
Lee Park, Suite 6010
Conshohocken, Pennsylvania 19428
(215) 832-6212

5.2.2 **At the Site**

Craig Wilhelm
Sellersville Borough Water Specialist
140 East Church Street
Sellersville, Pennsylvania 18960
(215) 257-5075

ORIGINAL (Red)

5.2.1 **Prior to Field Trip (continued)**

Lynnette Elser
Donna Santiago
U.S. EPA
841 Chestnut Building
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(215) 597-8333
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(215) 832-6212

5.2.2 **At the Site**

Craig Wilhelm
Sellersville Borough Water Specialist
140 East Church Street
Sellersville, Pennsylvania 18960
(215) 257-5075

5.4 SITE OBSERVATIONS

- A background reading of 2 ppm was recorded on the OVA.
- An OVA reading of 1,000 ppm was recorded in the auger hole at sample location SS-1 (approximately five feet deep). No OVA readings were recorded in the breathing zone.
- A background reading of 2 ppm was recorded on the PID. No readings were recorded above background for the PID.
- The mini-alert was set on the X1 position; no readings above background were recorded.
- The site is approximately 11 acres in size and predominantly wooded. Two streams flow through the property. The unnamed perennial stream flows from the western side of the site in a southeastward direction. The unnamed intermittent stream flows from the northeastern side of the site in a southwestward direction. The streams merge in the southern area of the site.
- The site was accessed from the northwestern corner. Access to the site was not restricted.
- Dirt-bike trails were located in the western part of the site.
- The site was bordered to the southwest and east by private residences.
- The auger hole samples that were obtained from the landfill area at depths from one to five feet revealed a bright green soil.
- A foamy substance was observed on the surface water downstream from the confluence of the two streams.
- A deteriorated, rusty 55-gallon drum containing a black tar substance was observed where the 18-inch-diameter corrugated metal pipe emerged from the landfill area. The flow from the pipe was less than 1 cfs. There is no information about the origin of this pipe. Many rust holes were observed along the side of the pipe; water was trickling out of the holes. Samples Sd-2 and S-4 were obtained near the holes rusted in the pipe, where water was being discharged from the pipe. No sediment was available at the pipe opening.

- A six-inch-diameter PVC pipe was observed protruding into the intermittent stream. No water was observed flowing from this pipe.

- Several rusty 55-gallon drums were observed in the intermittent tributary downstream of the corrugated pipe.

- Minnows were observed swimming in the unnamed perennial stream.

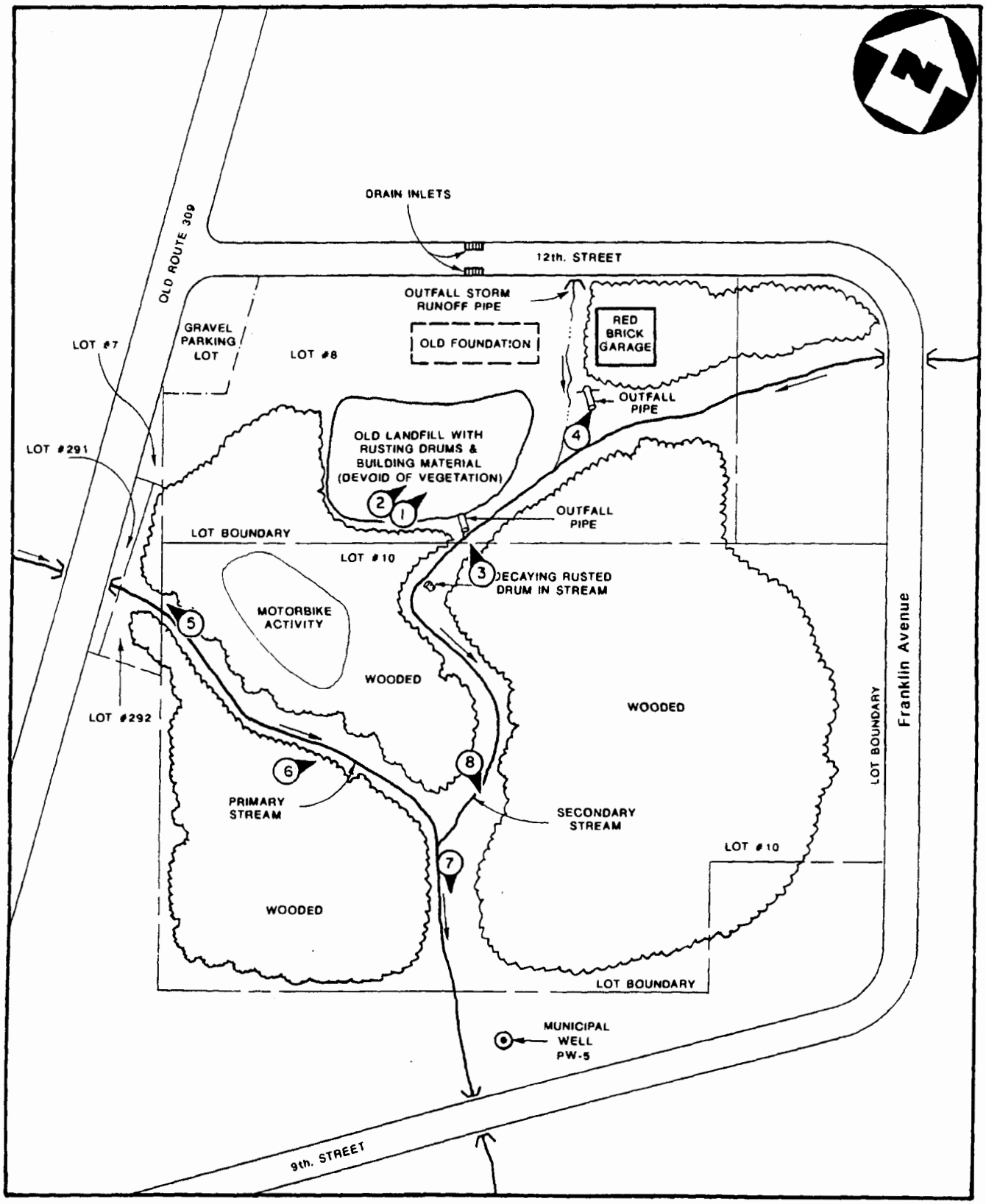


PHOTO LOCATION MAP

INACTIVE LANDFILL SITE, SELLERSVILLE, PA.

(NO SCALE)

FIGURE 5.3

NUS CORPORATION

A Halliburton Company

3263-05

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	2803

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Inactive Landfill	Old Route 309 (Main Street) and Twelfth Street

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG. DIST
Sellersville	PA	18960	Bucks	017	08

09 COORDINATES LATITUDE	LONGITUDE
40° 18' 48" . N	75° 15' 15" . W

10 TYPE OF OWNERSHIP (Check one)
[X] A. PRIVATE [ ] B. FEDERAL _____ [ ] C. STATE [ ] D. COUNTY [ ] E. MUNICIPAL
[ ] F. OTHER _____ [ ] G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
12 / 05 / 91 (month day year)	[ ] A. ACTIVE [X] B. INACTIVE	_____ / _____ (BEGINNING YEAR / ENDING YEAR) [X] UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
[ ] A. EPA [X] B. EPA CONTRACTOR HALLIBURTON NUS ARCS III (Name of firm) [ ] C. MUNICIPAL [ ] D. MUNICIPAL CONTRACTOR _____ (Name of firm)
[ ] E. STATE [ ] F. STATE CONTRACTOR _____ (Name of firm) [ ] G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Paul Davis	Geologist	HALLIBURTON NUS ARCS III	(215) 971-0900
09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Linda Ciarletta	Biologist	HALLIBURTON NUS ARCS III	(215)971-0900
Charles Meyer	Environmental Scientist	HALLIBURTON NUS ARCS III	(215)971-0900
Gregory DeCowsky	Biologist	HALLIBURTON NUS ARCS III	(215)971-0900
Richard Costello	Environmental Engineer	HALLIBURTON NUS ARCS III	(215)971-0900
Donald Whalen	Geologist	HALLIBURTON NUS ARCS III	(215)971-0900

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO.
Cassin Craig	Owner, PTI	484 Norristown Road Blue Bell, PA 19422	(215) 825-8400
Charles Andrichyn	Owner, PTI	West 5th and Iron Streets P.O. Box 846 Lansdale, PA 19446	(215)362-2715
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
[X] PERMISSION [ ] WARRANT	9:00 a.m.	Sunny and cold, with temperatures in the mid-30s.

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Mike Giuranna	United States Environmental Protection Agency	(215)597-1105

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Paul Davis	HALLIBURTON NUS	ARCS III	(215 971-0900	03 / 30 / 92 (month day year)

TDD NUMBER 3263-05

EPA NUMBER PA-2803

5.3 SAMPLE LOG

SITE NAME Inactive Landfill

TRAFFIC REPORTS Organic	Inorganic	High Hazard	SAMPLE IDENTIFIER	PHASE	SAMPLE DESCRIPTION	SAMPLE LOCATION	TARGET USE	pH	FIELD MEASUREMENTS
CJP 21	MCJP 20	—	PW-1	Aqueous	Clear odorless	Sellersville Boro. municipal supply well No. 5 9th Street, Sellersville	Domestic water supply (MUNICIPAL) pretreatment	7.45	No PID/OVA Readings
CJP 22	MCJP 21	—	HW-1	Aqueous	Clear odorless	Faith Baptist Church - North main street Sellersville, Pa.	Domestic water supply Drinking water	7.24	N/A
CJP 23	MCJP 22	—	HW-2	Aqueous	Clear odorless	EA-6	Domestic water supply Drinking water	7.01	N/A
CJP 24	MCJP 23	—	SW-1	Aqueous	Clear odorless	approximately 110-feet ENE of red brick bldg. in northern area of site, in secondary tributary.	No access restrictions to the public <1 mile - houses >1 mile - recreation	7.00	NO PID or OVA Readings
CJP 38	MCJP 30	—	Sd-1	Solid	Tan/gray clay odorless	Approximately 110-feet ENE of red brick bldg. in secondary tributary.	No access restrictions to the public	—	NO PID or OVA Readings
CJP 25	MCJP 24	—	SW-2	Aqueous	Clear odorless	Adjacent to the end of the 18-inch diameter corrugated pipe South of the landfill	No access restrictions to the <1 mile - houses >1 mile - recreation	6.98	NO PID or OVA Readings
CJP 52	MCJP 51	—	Sd-2	Solid	Brown gravel & silt - rust color fine sediment & organics	Approximately 10-feet upstream from the end of the corr. pipe. at discharge points from rusted holes in pipe	No access restrictions to the public	—	NO PID or OVA Readings
CJP 26	MCJP 25	—	SW-3	Aqueous	slightly cloudy odorless	Approximately 100-feet down stream from the corrugated pipe along secondary stream.	No access restrictions to the <1 mile houses >1 mile recreation	7.12	NO PID or OVA Readings
CJP 53	MCJP 52	—	Sd-3	Solid	Brown - reddish gravel with clay and silt.	Approximately 100 feet downstream, along secondary stream, from the corrugated pipe extending from landfill area.	No access restrictions to the public	—	NO PID or OVA Readings

TDD NUMBER 3263-05

EPA NUMBER PA-2803

5.3 SAMPLE LOG

SITE NAME Inactive Landfill

TRAFFIC REPORTS Organic	Inorganic	High Hazard	SAMPLE IDENTIFIER	PHASE	SAMPLE DESCRIPTION	SAMPLE LOCATION	TARGET USE	pH	FIELD MEASUREMENTS
CJP 27	MCJP 26	—	SW-4	Aqueous	Clear, odorless There was foam on stream surface	Approximately 80 feet upstream from where the creek flows below 9th Street	NO access restrictions to the public <1 mile no uses >1 mile recreational	7.14	NO PID or OVA Readings
CJP 54	MCJP 53	—	Sd-4	Solid	Reddish-brown gravel with some silt. odorless.	Approximately 80 feet upstream from where the creek flows below 9th Street	NO access restrictions to the public	—	NO PID or OVA Readings
CJP 28	MCJP 27	—	SW-5	Aqueous	Clear & odorless	Approximately 100 feet downstream from large culvert under old Rte. 309 and 30-feet downstream of pipe outfalls.	<1 mile no uses >1 mile recreational NO access restrictions to the public	7.15	NO PID or OVA Readings
CJP 55	MCJP 38	—	Sd-5	Solid	Brown gravelly sand	Approximately 100 feet downstream from large culvert under old rte. 309 and 30-feet downstream of pipe outfalls.	NO access restrictions to the public	—	NO PID or OVA Readings
CJP 29	MCJP 28	—	SW-6	Aqueous	Clear & odorless	Approximately 200 feet downstream from location SW-5 and Sd-5.	<1 mile no uses NO access restrictions to the public >1 mile recreational	7.12	NO PID or OVA Readings
CJP 56	MCJP 61	—	Sd-6	Solid	Brown organic silt	Approximately 200 feet downstream from location SW-5 and Sd-5.	NO access restrictions to the public	—	NO PID or OVA Readings
CJP 30	MCJP 29	—	SW-7	Aqueous	Duplicate of SW-2	Adjacent to the end of the 18-inch diameter corrugated pipe; South of the landfill.	<1 mile no uses NO access restrictions to the public >1 mile recreational	6.98	NO PID or OVA Readings
CJP 66	MCJP 70	—	Aqueous Blank	Aqueous	QA Sample	N/A	N/A	5.80	N/A
CJP 65	—	—	Trip Blank for Solid Samples.	Aqueous	QA Sample	N/A	N/A	—	N/A

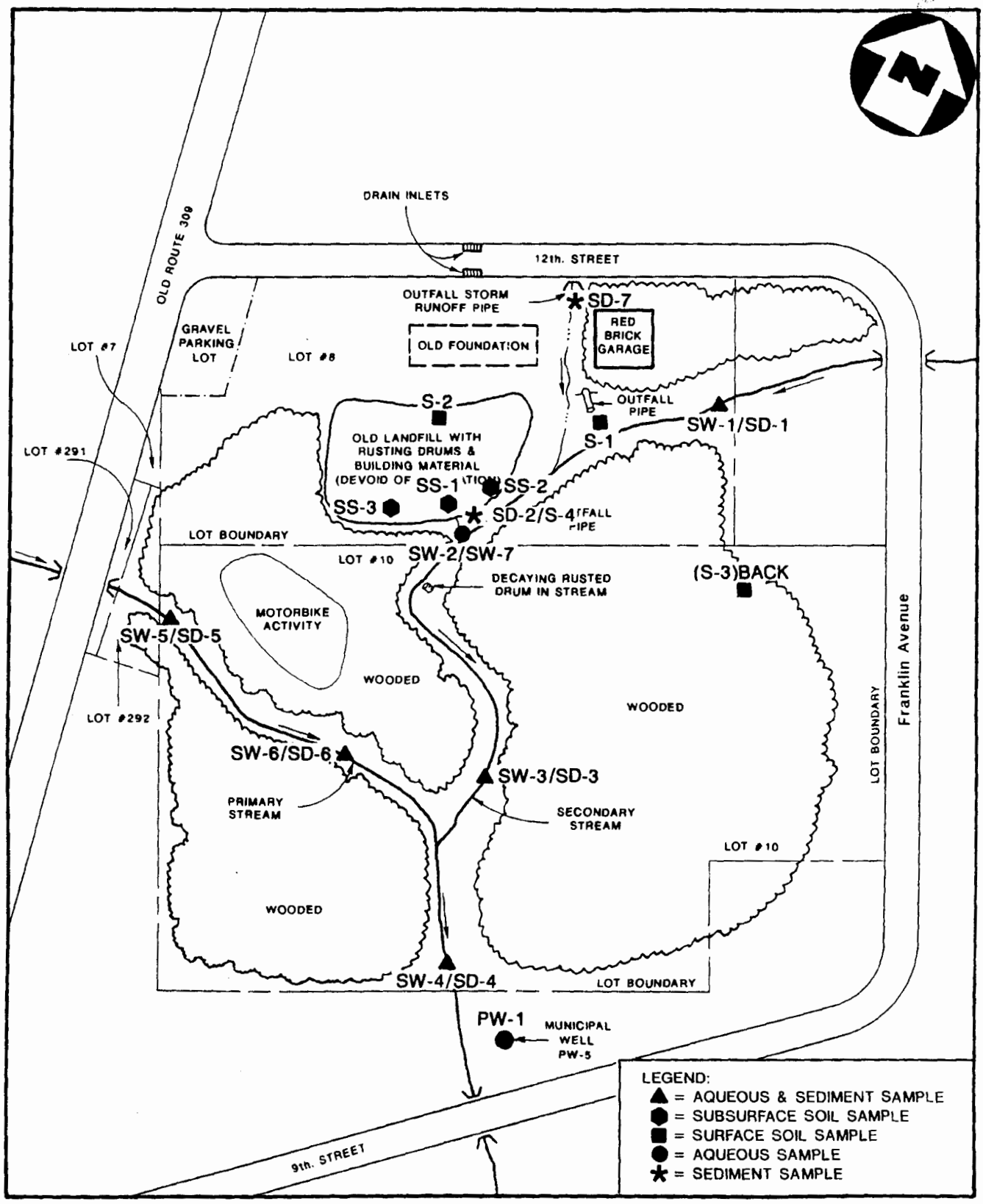
TDD NUMBER 3263-05

EPA NUMBER PA-2803

5.3 SAMPLE LOG

SITE NAME Inactive Landfill

TRAFFIC REPORTS Organic	Inorganic	High Hazard	SAMPLE IDENTIFIER	PHASE	SAMPLE DESCRIPTION	SAMPLE LOCATION	TARGET USE	pH	FIELD MEASUREMENTS
CJP 57	MCJP 62	—	Sd-7	Solid	Dark brown loam with pebble	In drainage ditch on north side of site. Adjacent to 13th street.	NO access restrictions to the public	—	NO PID or OVA Readings
CJP 58	MCJP 63	—	S-1	Solid	Dark brown, mottled with black clay. very stiff & sticky odorless, surface soil	From beneath the outfall pipe located south of the red brick building. Silt discharges into secondary stream	NO access restrictions to the public	—	NO PID or OVA Readings
CJP 59	MCJP 64	—	S-2	Solid	Dark brown Sandy loam, pieces of brick & metal showings debris. subsurface at 1 ft.	In the central portion of the land fill area. Approximately 4-feet north of location SS-2.	NO access restrictions to the public	—	NO PID or OVA Readings
CJP 60	MCJP 65	—	S-3 (background)	Solid	Dark brown Sandy loam with organic matter surface soil	On wooded hill in eastern area of site. upgradient from landfill.	NO access restrictions to the public	—	NO PID or OVA Readings
CJP 61	MCJP 66	—	S-4	Solid	duplicate of Sd-2	Approximately 10-feet upstream from the end of the corrugated pipe at discharge point from culvert inlets in pipe	NO access restrictions to the public	—	NO PID or OVA Readings
CJP 62	MCJP 67	—	SS-1	Solid	Dark brown Sandy loam. Pieces of bldg. debris subsurface at 5ft.	In the central portion of the land fill area	NO access restrictions to the public	—	OVA reading of 1000 ppm in auger hole NO OVA/PID reading in breathing zone
CJP 63	MCJP 68	—	SS-2	Solid	Red-brown clay with red & green granules. soil is somewhat green in color, subsurface at 15ft	Approximately 15-feet west of the secondary creek in a heavily vegetated area, within the landfill area	NO access restrictions to the public	—	NO PID or OVA Readings
CJP 64	MCJP 69	—	SS-3	Solid	Green & red granular soil. Bldg. debris subsurface at 4.5 ft.	In the southwest side of landfill area.	NO access restrictions to the public	—	NO PID or OVA Readings



SAMPLE LOCATION MAP

INACTIVE LANDFILL SITE, SELLERSVILLE, PA.

(NO SCALE)

FIGURE 5.1

NUS CORPORATION

A Halliburton Company

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE: PA	02 SITE NUMBER: 2803

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. GROUNDWATER CONTAMINATION — 02 [X] OBSERVED (DATE: December 1991) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 26,967 — 04 NARRATIVE DESCRIPTION
SBMWW supply well no. 5 was sampled and found to contain elevated levels of PCE, TCE, and 1,2-DCE.

01 [X] B. SURFACE WATER CONTAMINATION — 02 [X] OBSERVED (DATE: December 1991) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 3,495/1 mile — 04 NARRATIVE DESCRIPTION
No surface water intakes are located within a 15-stream-mile pathway distance from the site. However, the secondary and primary intermittent streams revealed elevated levels of various inorganic and organic compounds.

01 [ ] C. CONTAMINATION OF AIR — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION
None reported or observed.

01 [ ] D. FIRE/EXPLOSIVE CONDITIONS — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION
None reported or observed.

01 [X] E. DIRECT CONTACT — 02 [X] OBSERVED (DATE: December 1991) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 3,495/1-mile radius — 04 NARRATIVE DESCRIPTION
Access to the site is generally unrestricted. HALLIBURTON NUS ARCS III sampling in December 1991 revealed elevated levels of toluene, ethylbenzene, xylene, and various other inorganic and organic compounds.

01 [X] F. CONTAMINATION OF SOIL — 02 [X] OBSERVED (DATE: December 1991) — [ ] POTENTIAL — [ ] ALLEGED
03 AREA POTENTIALLY AFFECTED: 0.11 (Acres) — 04 NARRATIVE DESCRIPTION
HALLIBURTON NUS ARCS III sampling, in December 1991, revealed elevated levels of various hazardous compounds in on-site soils such as PCE, TCE, lead, and mercury.

01 [X] G. DRINKING WATER CONTAMINATION — 02 [X] OBSERVED (DATE: December 1991) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 26,967 — 04 NARRATIVE DESCRIPTION
HALLIBURTON NUS ARCS III sampling of SBMWW supply well no. 5 revealed elevated levels of PCE, TCE, and 1,1-DCE.

01 [X] H. WORKER EXPOSURE/INJURY — 02 [X] OBSERVED (DATE: December 1991) — [ ] POTENTIAL — [ ] ALLEGED
03 WORKERS POTENTIALLY AFFECTED: 1 — 04 NARRATIVE DESCRIPTION
One employee occasionally uses a building that is located on site.

01 [X] I. POPULATION EXPOSURE/INJURY — 02 [X] OBSERVED (DATE: December 1991) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 3,495/1-mile radius — 04 NARRATIVE DESCRIPTION
Access is generally unrestricted to the site. Elevated levels of various inorganic and organic compounds have been detected in on-site soils, surface water, and sediments.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	2803

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

01 [X] J. DAMAGE TO FLORA — 02 [X] OBSERVED (DATE: 12/5/91) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

The landfill area is void of vegetation.

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION *(Include name(s) of species)*

None reported or observed.

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

None reported or observed.

01 [X] M. UNSTABLE CONTAINMENT OF WASTES *(Spills, Runoff, Standing liquids, Leaking drums)* — 02 [X] OBSERVED (DATE: December 1991) ☐ POTENTIAL ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 26,743/4-mile radius 04 NARRATIVE DESCRIPTION

Deteriorated drums were observed. There are no records that indicate whether the landfill had a protective liner or cap to prevent migration of its contents.

01 [X] N. DAMAGE TO OFFSITE PROPERTY — 02 [X] OBSERVED (DATE: March 1990) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

SBMWW supply well no. 5 was shut down due to elevated levels of TCE and 1,1,1-TCEA in 1990. Those compounds were eventually also detected in the landfill area.

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

None reported or observed.

01 [X] P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL [X] ALLEGED

04 NARRATIVE DESCRIPTION

Allegedly, uncontrolled dumping of wastes occurred between the 1940s and the 1950s. There are no records of authorized dumping permits.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

An auto mechanic allegedly dumped waste oil and radiator fluid on site during the late 1960s and early 1970s.

III. TOTAL POPULATION POTENTIALLY AFFECTED: 26,967

IV. COMMENTS

None

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

See reference nos. 1, 2, 3, 4, 5, 7, 8, 9, 10, and 11 on the attached sheet.

EPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	2803

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES *(Check all that apply)*

- [X] A. SOLID
- [ ] B. POWDER, FINES
- [ ] C. SLUDGE
- [ ] D. OTHER _____ *(Specify)*
- [ ] E. SLURRY
- [X] F. LIQUID
- [ ] G. GAS

02 WASTE QUANTITY AT SITE
(Measures of waste quantities must be independent)

TONS: unknown
CUBIC YARDS: approximately 888
NO. OF DRUMS: _____

03 WASTE CHARACTERISTICS *(Check all that apply)*

- [X] A. TOXIC
- [ ] B. CORROSIVE
- [ ] C. RADIOACTIVE
- [X] D. PERSISTENT
- [ ] E. SOLUBLE
- [ ] F. INFECTIOUS
- [ ] G. FLAMMABLE
- [ ] H. IGNITABLE
- [X] I. HIGHLY VOLATILE
- [ ] J. EXPLOSIVE
- [ ] K. REACTIVE
- [ ] L. INCOMPATIBLE
- [ ] M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTES			
SOL	SOLVENTS	unknown		
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	unknown		

IV. HAZARDOUS SUBSTANCES *(See Appendix for most frequently cited CAS Numbers)*

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SOL	PCE	127-18-4	landfill (CJP62)	up to 19	ppb
SOL	TCE	79-01-6	landfill (CJP63)	up to 11	ppb
SOL	1,2-DCE	540-59-0	landfill (CJP61)	up to 34	ppb
SOL	1,1-DCEA	75-34-3	landfill (CJP59)	up to 28	ppb
SOL	toluene	108-88-3	landfill (CJP62)	up to 100,000	ppb
SOL	ethylbenzene	100-41-4	landfill (CJP62)	up to 28,000	ppb
SOL	xylene	1330-20-7	landfill (CJP62)	up to 190,000	ppb
OLW	Aroclor 1254	1336-36-3	landfill (CJP64)	up to 6,200	ppb
IOC	cyanide	57-12-5	landfill (MCJP69)	up to 10.5	ppm
MES	cadmium	7440-43-9	landfill (MCJP69)	up to 45.4	ppm
MES	chromium	7440-47-3	landfill (MCJP69)	up to 1,560	ppm
MES	zinc	7646-85-7	landfill (MCJP67)	up to 42,800	ppm
MES	lead	7439-92-1	landfill (MCJP64)	up to 6,560	ppm
MES	mercury	7439-97-6	landfill (MCJP68)	up to 60.5	ppm
MES	vanadium	1314-62-1	landfill (MCJP69)	up to 507	ppm

IV. FEEDSTOCKS *(See Appendix for CAS Numbers)* N/A

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

1. HALLIBURTON NUS Environmental Corporation, ARCS III. Site inspection; sample results. Project No. 3263-05, December 5, 1991.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	2803

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (specify)				
☐ H. LOCAL (specify)				
☐ I. OTHER (specify)				
☒ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☒ F. LANDFILL	4,800	square feet
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

- ☐ A. INCINERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☐ H. OTHER (Specify)

05 OTHER

- ☒ A. BUILDINGS ON SITE

06 AREA OF SITE

0.11 (Acres)

07 COMMENTS

During the 1940s, a local waste hauler from Sellersville allegedly dumped radium-based waste paint at the site. Also, during the early 1970s, an automotive mechanic leased the site as a service center. It has been alleged by residents in the vicinity of the site that the mechanic dumped waste oil and radiator fluid on the site grounds.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ☒ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

The landfill appears to have no protective liner or cap to prevent migration of the landfill's contents.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE : ☒ YES ☐ NO

02 COMMENTS

Access is generally unrestricted to the site. There are no containment structures or fences securing the disposal areas from the public.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

4. HALLIBURTON NUS Environmental Corporation, ARCS III. Screening Site Inspection; reconnaissance. Project No. 3263-05, November 6, 1991.

6. NUS Corporation, FIT 3. Preliminary Assessment Report. TDD No. F3-9011-19, April 5, 1991.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	2803

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE *(Check one)*

☐ A. 10^{-6} - 10^{-8} cm/sec ☐ B. 10^{-4} - 10^{-6} cm/sec ☒ C. 10^{-5} - 10^{-3} ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK *(Check one)*

☐ A. IMPERMEABLE *(Less than 10^{-6} cm/sec)* ☐ B. RELATIVELY IMPERMEABLE *(10^{-4} - 10^{-6} cm/sec)* ☒ C. RELATIVELY PERMEABLE 10^{-3} - 10^{-5} ☐ D. VERY PERMEABLE *(greater than 10^{-2} cm/sec)*

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
approximately >5 (ft)	unknown (ft)	4.5 to 6.5

06 NET PRECIPITATION	07 ONE-YEAR 24-HOUR RAINFALL	08 SLOPE		
		SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
9.89 (in)	2.6 (in)	3.1 %	south-southeast	approximately 5%

09 FLOOD POTENTIAL

SITE IS IN 500 YEAR FLOOD PLAIN

10 ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS *(5-acre minimum)*

ESTUARINE	OTHER
A. N/A (mi)	B. 0 palustrine (mi)

12 DISTANCE TO CRITICAL HABITAT *(of endangered species)*

N/A (mi)

ENDANGERED SPECIES: N/A

13 LAND USE IN VICINITY

DISTANCE TO

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; FORESTS, OTHER RURAL AREAS	AGRICULTURAL LANDS: PRIME AG LAND	AGRICULTURAL LANDS: AG LAND
A. 0.04 (mi)	B. 0.04 (mi)	C. N/A (mi)	D. N/A (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The site property generally slopes to the south. However, the eastern side of the property is higher in elevation than the remainder of the site.

VII. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

See reference nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13 on the attached sheet.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	2803

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	3	Organics: Compuchem Laboratories	currently
SURFACE WATER	7	Inorganics: IT Analytical - PA	available
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	14	Organics: Compuchem Laboratories	currently
VEGETATION		Inorganics: IT Analytical - PA	available
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
OVA	A background reading of 2 ppm was recorded. A reading of 1,000 ppm was recorded at location SS-1.
Radiation Mini-Alert	No readings above background were recorded.
pH/conductivity	

IV. PHOTOGRAPHS AND MAPS

01 TYPE [X] GROUND [ ] AERIAL

02 IN CUSTODY OF HALLIBURTON NUS
(Name of organization or individual)

03 MAPS [X] YES [ ] NO

04 LOCATION OF MAPS
HALLIBURTON NUS Environmental Corporation, ARCS III

V. OTHER FIELD DATA COLLECTED *(Provide narrative description)*

N/A

VI. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

5. HALLIBURTON NUS Environmental Corporation, ARCS III. Screening Site Inspection; site visit. Project No. 3263-05, December 5, 1991.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	2803

II. CURRENT OWNER(S)

01 NAME	02 D & B NUMBER	10 NAME (PARENT COMPANY, if applicable)	11 D & B NUMBER
Cassin W. Craig		Park Ten, Incorporated	

03 STREET ADDRESS (P.O. Box, RFD #, Etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, Etc.)	13 SIC CODE
484 Norristown Road		484 Norristown Road	

05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
Blue Bell	PA	19422	Blue Bell	PA	19422

01 NAME	02 D & B NUMBER	10 NAME	11 D & B NUMBER
Charles Andrichyn		N/A	

03 STREET ADDRESS (P.O. Box, RFD #, Etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, Etc.)	13 SIC CODE
West Fifth and Iron Streets			

05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
Lansdale (P.O. Box 846)	PA	19446			

01 NAME	02 D & B NUMBER	10 NAME	11 D & B NUMBER
		N/A	

03 STREET ADDRESS (P.O. Box, RFD #, Etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, Etc.)	13 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D & B NUMBER	10 NAME	11 D & B NUMBER
N/A		N/A	

03 STREET ADDRESS (P.O. Box, RFD #, Etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, Etc.)	13 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE

III. PREVIOUS OWNERS(S) *(List most recent first)* / IV. REALTY OWNER(S) *(if applicable, list most recent first)*

01 NAME	02 D & B NUMBER	10 NAME	11 D & B NUMBER
Ulysees Nace		N/A	

03 STREET ADDRESS (P.O. Box, RFD #, Etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, Etc.)	13 SIC CODE
unknown			

05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D & B NUMBER	10 NAME	11 D & B NUMBER
N/A		N/A	

03 STREET ADDRESS (P.O. Box, RFD #, Etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, Etc.)	13 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D & B NUMBER	10 NAME	11 D & B NUMBER
N/A		N/A	

03 STREET ADDRESS (P.O. Box, RFD #, Etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, Etc.)	13 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE

IV. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

6. NUS Corporation, FIT 3. Preliminary Assessment Report. TDD No. F3-9011-19, April 5, 1991.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	2803

II. CURRENT OPERATOR *(Provide if different from owner)*

01 NAME	02 D & B NUMBER
N/A	

03 STREET ADDRESS *(P.O. Box, RFD #, Etc.)*	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER

OPERATOR'S PARENT COMPANY *(if applicable)*

10 NAME	11 D & B NUMBER
N/A	

12 STREET ADDRESS *(P.O. Box, RFD #, Etc.)*	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

III. PREVIOUS OPERATOR (S) *(List most recent first; provide if different from owner)*

01 NAME	02 D & B NUMBER
N/A	

03 STREET ADDRESS *(P.O. Box, RFD #, Etc.)*	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER

PREVIOUS OPERATOR'S PARENT COMPANIES *(if applicable)*

10 NAME	11 D & B NUMBER
N/A	

12 STREET ADDRESS *(P.O. Box, RFD #, Etc.)*	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D & B NUMBER
N/A	

03 STREET ADDRESS *(P.O. Box, RFD #, Etc.)*	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER

10 NAME	11 D & B NUMBER
N/A	

12 STREET ADDRESS *(P.O. Box, RFD #, Etc.)*	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D & B NUMBER
N/A	

03 STREET ADDRESS *(P.O. Box, RFD #, Etc.)*	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER

10 NAME	11 D & B NUMBER
N/A	

12 STREET ADDRESS *(P.O. Box, RFD #, Etc.)*	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

IV. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	2803

II. ON-SITE GENERATOR

01 NAME	02 D & B NUMBER
N/A	

03 STREET ADDRESS (P.O. Box, RFD #, Etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME	02 D & B NUMBER	01 NAME	02 D & B NUMBER
Ametek - U.S. Gauge		N/A	

03 STREET ADDRESS (P.O. Box, RFD #, Etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, Etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
Sellersville	PA	18960			

01 NAME	02 D & B NUMBER	01 NAME	02 D & B NUMBER
N/A		N/A	

03 STREET ADDRESS (P.O. Box, RFD #, Etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, Etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D & B NUMBER	01 NAME	02 D & B NUMBER
Lamar Barndt		N/A	

03 STREET ADDRESS (P.O. Box, RFD #, Etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, Etc.)	04 SIC CODE
unknown			

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
unknown					

01 NAME	02 D & B NUMBER	01 NAME	02 D & B NUMBER
N/A		N/A	

03 STREET ADDRESS (P.O. Box, RFD #, Etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, Etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

6. NUS Corporation, FIT 3. Preliminary Assessment Report. TDD No. F3-9011-19, April 5, 1991.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE: PA	02 SITE NUMBER: 2803

II. PAST RESPONSE ACTIVITIES

01 [X] A. WATER SUPPLY CLOSED — 02 DATE: March 1990 — 03 AGENCY:
04 DESCRIPTION
SBMWW well no. 5 was shut down during 1990 and 1991 due to elevated levels of TCE and 1,1,1-TCEA.

01 [ ] B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE: — 03 AGENCY:
04 DESCRIPTION
N/A

01 [ ] C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE: — 03 AGENCY:
04 DESCRIPTION
N/A

01 [ ] D. SPILLED MATERIAL REMOVED — 02 DATE: — 03 AGENCY:
04 DESCRIPTION
N/A

01 [X] E. CONTAMINATED SOIL REMOVED — 02 DATE: — 03 AGENCY:
04 DESCRIPTION
RSO removed contaminated soil in 1985.

01 [ ] F. WASTE REPACKAGED — 02 DATE: — 03 AGENCY:
04 DESCRIPTION
N/A

01 [X] G. WASTE DISPOSED ELSEWHERE — 02 DATE: — 03 AGENCY:
04 DESCRIPTION
Radium paint/soil was taken to Washington state after the RSO investigation in 1985.

01 [ ] H. ON-SITE BURIAL — 02 DATE: — 03 AGENCY:
04 DESCRIPTION
N/A

01 [ ] I. IN SITU CHEMICAL TREATMENT — 02 DATE: — 03 AGENCY:
04 DESCRIPTION
N/A

01 [ ] J. IN SITU BIOLOGICAL TREATMENT — 02 DATE: — 03 AGENCY:
04 DESCRIPTION
N/A

01 [ ] K. IN SITU PHYSICAL TREATMENT — 02 DATE: — 03 AGENCY:
04 DESCRIPTION
N/A

01 [ ] L. ENCAPSULATION — 02 DATE: — 03 AGENCY:
04 DESCRIPTION
N/A

01 [ ] M. EMERGENCY WASTE TREATMENT — 02 DATE: — 03 AGENCY:
04 DESCRIPTION
N/A

01 [ ] N. CUTOFF WALLS — 02 DATE: — 03 AGENCY:
04 DESCRIPTION
N/A

01 [ ] O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE: — 03 AGENCY:
04 DESCRIPTION
N/A

01 [ ] P. CUTOFF TRENCHES/SUMP — 02 DATE: — 03 AGENCY:
04 DESCRIPTION
N/A

01 [ ] Q. SUBSURFACE CUTOFF WALL — 02 DATE: — 03 AGENCY:
04 DESCRIPTION
N/A

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE: PA	02 SITE NUMBER: 2803

II. PAST RESPONSE ACTIVITIES *(Continued)*

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

III. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

4. HALLIBURTON NUS Environmental Corporation, ARCS III. Screening Site Inspection; reconnaissance. Project No. 3263-05, November 6, 1991.

6. NUS Corporation, FIT 3. Preliminary Assessment Report. TDD No. F3-9011-19, April 5, 1991.

14. Andrichyn, Charles, Park Ten, Incorporated, with Paul Davis, HALLIBURTON NUS, ARCS III. Telecon. November 14, 1991.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE: PA	02 SITE NUMBER: 2803

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY ACTION [X] YES [ ] NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

The site was sampled by Sellersville Borough in March 1990, and results of the sampling revealed elevated levels of 1,1,1-TCEA and TCE. The site was then identified by the Bucks County Health Department and referred to the Pennsylvania Department of Environmental Resources in 1990 for further investigation. PA DER then referred the site to EPA for further action.

III. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

6. NUS Corporation, FIT 3. Preliminary Assessment Report. TDD No. F3-9011-19, April 5, 1991.

SECTION 6.0

6.0 REFERENCES FOR SECTIONS 1.0 THROUGH 5.0

1. United States Geological Survey. Telford, Pennsylvania Quadrangle, 7.5 Minute Series. Topographic Map. 1960, photorevised 1969 and 1973. Combined with Perkiomenville, Pennsylvania Quadrangle, 7.5 Minute Series. Topographic Map. 1960, photorevised 1969 and 1973; Doylestown, Pennsylvania Quadrangle, 7.5 Minute Series. Topographic Map. 1953, photorevised 1983; Milford Square, Pennsylvania Quadrangle, 7.5 Minute Series. Topographic Map. 1957, photorevised 1968 and 1973; Quakertown, Pennsylvania Quadrangle, 7.5 Minute Series. Topographic Map. 1957, photorevised 1968 and 1973; and Bedminster, Pennsylvania Quadrangle, 7.5 Minute Series. Topographic Map. 1957, photorevised 1983.

2. NUS Corporation, FIT 3. Preliminary Assessment Report of Inactive Landfill. TDD No. F3-9011-19, April 5, 1991.

3. HALLIBURTON NUS Environmental Corporation, ARCS III. Screening site inspection; non-sampling site reconnaissance. Project No. 3263-05, November 6, 1991.

4. Andrichyn, Charles, Park Ten, Incorporated, with Paul Davis, HALLIBURTON NUS ARCS III. Telecon. December 20, 1991.

5. Andrichyn, Charles, Park Ten, Incorporated, with Linda Ciarletta, HALLIBURTON NUS ARCS III. Telecon. April 14, 1992.

6. HALLIBURTON NUS Environmental Corporation, ARCS III. Screening site inspection; site visit. Project No. 3263-05, December 5, 1991.

7. Bucks County Planning Commission. Bucks County Water Supply Inventory. December 1988.

8. North Penn Water Authority. Water Service Area Map. May 1986.

9. Pennsylvania Department of Environmental Resources, State Water Plan Division. Water Use Data System. November 22, 1991.

10. Greenman, David W., Pennsylvania Department of Internal Affairs, Topographic and Geologic Survey. Groundwater Resources of Bucks County, Pennsylvania. Bulletin W11, 1955.

11. Federal Reporting Data System. Community Public Water Suppliers in Region III. April 11, 1988.

12. Pennsylvania Department of Environmental Resources, Bureau of Community Environmental Control. Sanitary Survey Forms for Evaluating Public Water Supplies, Sellersville Borough. February 23, 1984.

13. Pennsylvania Department of Environmental Resources, Bureau of Community Environmental Control. Sanitary Survey Forms for Evaluating Public Water Supplies, Perkasie Borough Authority. December 18, 1984.

14. Wynhoop, Tim, Hilltown Township Water and Sewer Authority, with Velitchko Etropolski, NUS FIT 3. Telecon. December 5, 1990.

15. International Exploration, Incorporated for Hilltown Township Water and Sewer Authority. Pumping Test Report, Hilltown Well No. 5. December 30, 1985.

16. Beck, Donald F., Director of Public Works, Telford Borough Water Authority. NUS FIT 3 Water Supply Questionnaire. August 1987.

17. Spotts, Stevens and McCoy, Incorporated for Telford Borough Authority. Water System General Plan Map. July 11, 1985.

18. Gable, Terry, North Penn Water Authority, with Jill Hartnell, NUS FIT 3. Telecon. August 21, 1990.

19. Borchers, Harry J., Jr., North Penn Water Authority. NUS FIT 3 Water Supply Questionnaire. August 1987.

20. Pennsylvania Department of Environmental Resources, Bureau of Topographic and Geologic Survey, Groundwater Inventory System, Bucks County. August 1983.

21. SMC Martin. Approximate Wetland Boundary Map. Undated.

22. United States Department of Agriculture, Soil Conservation Service. Soil Survey of Bucks and Philadelphia Counties, Pennsylvania. 1975.

23. National Oceanic and Atmospheric Administration. Climatography of the United States. Local Climatological Data. Climate of Pennsylvania; Summary of Allentown, Pennsylvania. 1983.

24. United States Department of Commerce, National Climatic Center. Climatic Atlas of the United States. 1979.

25. United States Department of Commerce, United States Printing Office. Rainfall Frequency Atlas of the United States. Technical Paper No. 40, 1963.

26. United States Department of Commerce, Bureau of the Census. 1980 Census of the Population. Volume 1 Characteristics of the Population, Chapter B General Population Characteristics; Part 40, Pennsylvania. Issued August 1982.

27. Kulp, Charles, United States Department of the Interior, Fish and Wildlife Service, to Garth Glenn, NUS FIT 3. Correspondence. February 7, 1990.

28. United States Geological Survey. Telford, Pennsylvania Quadrangle, 7.5 Minute Series. National Wetlands Inventory. April 1981. Combined with Perkiomenville, Pennsylvania Quadrangle, 7.5 Minute Series. National Wetlands Inventory. May 1981; Doylestown, Pennsylvania Quadrangle, 7.5 Minute Series. National Wetlands Inventory. April 1981; Milford Square, Pennsylvania Quadrangle, 7.5 Minute Series. National Wetlands Inventory. May 1981; and Quakertown, Pennsylvania Quadrangle, 7.5 Minute Series. National Wetlands Inventory. April 1981.

29. NUS Corporation, FIT 3. Preliminary Assessment Report of Ametek - United States Gauge. TDD No. F3-8612-12, March 1, 1984.